spectrum in paraffin solutions in the presence of three additional groups of narrow lines (the two spectra are reproduced). Thus, dibenzylaminoethanol is as good a medium as normal paraffins for bringing out the fundamental frequencies of perylene. In the case of defectol the luminescence spectra were obtained in frozen solutions of normal paraffins from heptane to undecane. At room temperature the luminescence spectrum of defectol consists of three wide bands, which remain diffuse even at liquid nitrogen temperature. At 20.4°K the bands resolve into fine lines, which made it feasible to carry out a vibrational analysis. The spectra change somewhat in going from one solvent to another in the paraffin series: they are sharper in paraffins with an odd number of C atoms. "The authors express their deep gratitude to A. F. Prikhot'ko and M. T. Shpak for making possible the measurements at liquid hydrogen temperature." Orig. art. has 2 figures.

ASSOCIATION: Chelyabinskiy pedagogicheskiy institut (Chelyabinsk Pedagogical Institute)

ACCESSION NR: AP

SOURCE: [illegible]

AUTHORS: [illegible]

TITLE: Luminescence spectra of frozen solutions of fluoranthen

[illegible] 1964, [illegible]

[illegible] spectra, [illegible]

[illegible]

[illegible] of fluoranthen [illegible]

Card 1/2

L 38543-65

ACCESSION NR: AR5009788

levels than on the excited levels of the ground state of the fluoranthen molecule. W

SUB CODE [illegible] ENCL [illegible]

Card 2/2

VAL'DMAN, M.M.; SHERMET'YEV, G.D.

Luminescence spectra of frozen solutions of fluoranthene.
Trudy Chel. gos. ped. inst. 2:195-200 '64. (MIRA 18:9)

L 46581-66 EWT(m)/EWP(t) RM

ACC NR: AR6017253 SOURCE CODE: UR/0058/65/000/012/D065/D065

AUTHOR: Val'dman, M. M.; Sheremet'yev, G. D.

TITLE: Spectroscopy of frozen solutions of rubicene

SOURCE: Ref. zh. Fizika, Abs. 12D547

REF SOURCE: Tr. Komis. po spektroskopii. AN SSSR, vyp. 1, 1964, 459-467

TOPIC TAGS: phosphorescence spectrum, fluorescence spectrum, organic solvent, low temperature research

ABSTRACT: The luminescence and absorption spectra of fluoranthen (I) and rubicene (II) in n-paraffins were investigated at 77K. The solutions of I disclosed phosphorescence and fluorescence spectra with characteristic quasi-line structure, situated in the visible region and separated from one another by an interval of 6100 cm^{-1}. In different solvents (hexane, heptane, octane, nonane) the phosphorescence spectrum of I possesses a strongly pronounced stability, this being attributed both to a long duration of afterglow and to the relatively weak influence of the medium on the triplet levels. The fluorescence spectrum of solutions of II can be regarded as a result of a superposition of two identical spectra, the displacement of which relative to each other depends on the nature of the solvent. In all investigated solvents, complete mirror symmetry of the absorption and luminescence spectra is observed. A vibrational analysis of the spectra has been carried out. [Translation of abstract]

SUB CODE: 20, 07/

Card 1/1 hs

L 14839-66 EWT(m)/EWP(j) RM

ACC NR: AP5025297 SOURCE CODE: UR/0051/65/019/004/0531/0534

ORG: None

AUTHOR: Val'dman, M. M.; Personov, R. I.

TITLE: Quasi-linear fluoresence and absorption spectra of perylene at 20 and 4 degrees K

SOURCE: Optika i spektroskopiya, v. 19, no. 4, 1965, 531-534

TOPIC TAGS: perylene, fluorescence spectrum, absorption spectrum, vibration spectrum, line width

ABSTRACT: A study of the fluorescence spectra of perylene in hexane showed that as the temperature is lowered from 77 to 20 and 4K, the spectral lines narrow appreciably, new lines appear, and very fine splitting (5-7 cm^{-1}) becomes visible. At hydrogen and helium temperatures, over 100 lines (the position of which can be determined within 0.2—0.3 Å) were counted in the spectrum. A similar increase in line sharpness with decreasing temperature is observed in the long-wave region of the absorption spectrum. Comparison of the fluorescence and absorption spectra of perylene in hexane at 20 and 4K shows that the resonance lines are the very strong lines of the fluorescence spectrum, 4460.5 Å at 20K and 4461.3 Å at 4K,

Card 1/2 UDC: 535.372+535.34

L 14839-66

ACC NR: AP5025297

can be attributed to the 0-0 transition. Vibrational analysis of the spectra made it possible to establish the fundamental frequency of the normal vibrations in the ground and excited states. A detailed analysis of the vibrational structure of quasi-linear fluorescence spectra of perylene is given; a characteristic feature of these spectra is their shift toward long wavelengths as the temperature is lowered. This shift indicates a high sensitivity of the perylene molecule to slight changes in the surrounding medium and to changes associated with the thermal contraction of the solvent crystal. The series of pictures of the fluorescence and absorption spectra of perylene at 20 and 4K were taken by L. A. Klimova, to whom the authors express their sincere appreciation. In conclusion, the authors thank E. V. Shpol'skiy for his constant attention and interest in this work. Orig. art. has: 2 figures and 1 table.

SUB CODE: 20 / SUBM DATE: 08Ju164 / ORIG REF: 008 / OTH REF: 004

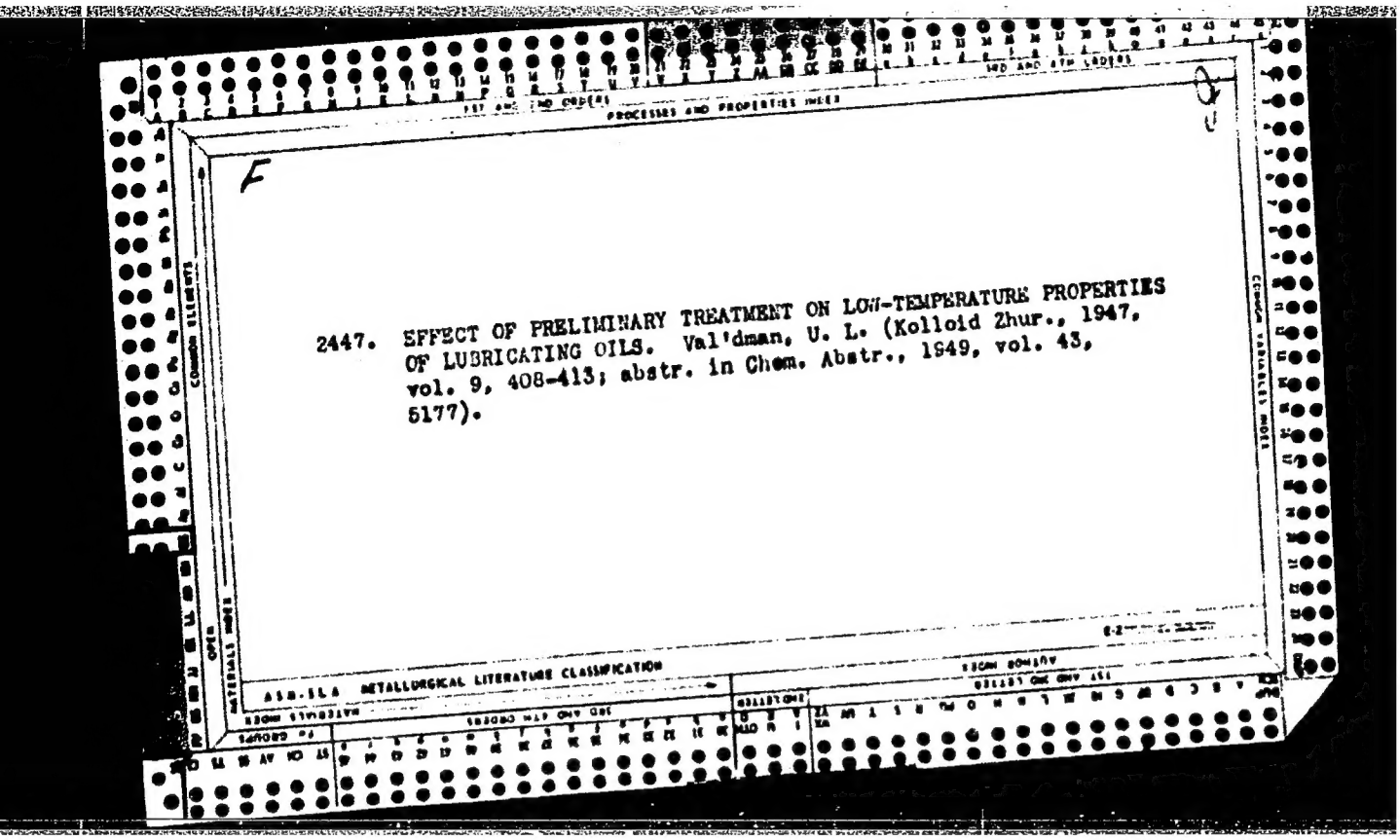
07/

Card 2/2

KALMYKOV, V.A.; AGEYEV, P. Ya., VAL'DNER, O.A.

Thermoelectronic properties of acid slags. [illegible]
chem.met. 7 no.12:5-9 '62 (MIRA 15:1)

1. Leningradskiy politekhnicheskiy institut.



F

2447. EFFECT OF PRELIMINARY TREATMENT ON LOW-TEMPERATURE PROPERTIES OF LUBRICATING OILS. Val'dman, U. L. (Kolloid Zhur., 1947, vol. 9, 408-413; abstr. in Chem. Abstr., 1949, vol. 43, 5177).

VAL'DMAN, V.A.

[Rheumatism] O revmatizme. Izd. 2-oe, perer. [Leningrad] Medgiz, 1956. 156 p. (MLRA 10:2)
(RHEUMATIC FEVER)

VAL'DMAN, V. A.

Venous pressure and venous tone Leningrad Gos. ind-v[illegible] biolo ichesk[illegible] i m[illegible] . lib-ry, 1935. 52 p.

Cyr. 4 QP122

1. Veins - Pressure. 2. Blood - Pressure.

VAL'DMAN, V. A. Prof

PA 31/49T49

USSR/Medicine - Veins, Puncture Jul/Aug 48

"Method Employed for Prolonged (Droplet) Phlebotomy," Prof V. A. Val'dman, 5¼ pp

"Terapev Arkhiv" Vol XX, No 4

Describes method in detail with sketch. It has definite advantages over that of Morits and Tabor. Discusses applications, with four graphs.

31/49T49

[redacted], V. A.

Prolonged hyperthermia and [illegible]. [illegible]. Kemerovo, 1947. 102 p.

1. Fever. 2. Communicable diseases.

VALDMAN, V.A.

Functional phlebotonometry. Klin.med., Moskva 28 no.5:25-34 May 50 (CLML 19:4)

1. Leningrad.

VAL'DMAN, V.A.

Vascular System - Diseases

Rheumatic endotheliosis and cupping glass test; Klin. med. 30 no. 1, 1952.

Monthly List of Russian Accessions, Library of Congress, May 1952. UNCLASSIFIED.

VAL'DMAN, V. A.

[Rheumatism] O revmatizme. [Leningrad] Medgiz, 1953. 130 p.
(Rheumatism) (MLRA 8:5)

VAL'DMAN, V.A., professor, zasluzhennyy deyatel' nauki.

Treatment of enterobiasis. Pediatriia no.1:72-73 Ja-F '54.
(MLRA 7:3)

1. Iz fakul'tetskoy terapevticheskoy kliniki Leningradskogo pediatricheskogo meditsinskogo instituta.
(Worms, Intestinal and parasitic)

VAL'DMAN, V.A., professor, zasluzhennyy deyatel' nauki

Myodystrophies of the heart and blood vessels. Terap. arkh. 26 no.2:16-21 Mr-Ap '54. (MLRA 7:8)

1. Iz Leningradskogo gosudarstvennogo pediatricheskogo meditsinskogo instituta.

(MYOCARDIUM, diseases,
*myocardosis)

VAL'dMAN, V. A.

USSR/Medicine - Physiology

ID-930

Card 1/1 Pub 33-13/29

Author : Val'dman, V. A.

Title : Foot plethysmograph

Periodical : Fiziol. zhur. 40, 344-347, May/Jun 1954

Abstract : Foot plethysmograph is a sensitive instrument capable of recording reflex vascular reactions during either conditioned o unconditioned action, making it possible to determine the peculiarities of nervous activity in people. The plethysmograph, constructed by the author of this article, in 1950, consists of a metal cylinder enveloped in asbestos and covered with insulating material to prevent cooling of its walls. It is constructed in such a manner that a leg can remain motionless even when it takes a long period of time to make graphic recordings of changes in the volume of that limb. Diagrams. Six Soviet references.

Institution : Faculty Therapeutic Clinic, Leningrad State Pediatric Medical Institute

Submitted : November 28, 1953

VAL'DMAN, V.A., zasluzhennyy deyatel' nauki, professor.

Etiology of rheumatic fever and its prevention. Klin.med. 33 no.3: 17-22 Mr '55. (MLRA 8:5)

1. Iz Leningradskogo pediatricheskogo meditsinskogo instituta (dir. prof. N.T.Shutova).
(RHEUMATISM, etiol. & prev.)

VAL'DMAN, V.A.

Sedimentograph. Fiziol.zhur. 41 no.3:430-432 My-Je '55.
(MLRA 8:8)

1. Kafedra fakul'tetskoy terapii Pediatricheskogo meditsinskogo instituta, Leningrad.

(BLOOD SEDIMENTATION, determination, appar.)

VAL'DMAN, V.A., professor, zasluzhennyy deyatel' nauki.(Leningrad)

Administration of drugs by means of intravenous drip techniques. Klin. med. 34 no.1:60-64 '56 (MLRA 9:5)

1. Iz fakul'tetskoy terapevticheskoy kliniki (zav.-zasluzhennyy deyatel' nauki prof. V.A. Val'dman) Leningradskogo pediatricheskogo meditsinskogo instituta (dir.-prof. N.T. Shutova)

(INFUSIONS, PARENTERAL
intravenous, drip technic in use for drug admin.)
(DRUGS, admin.
intravenous drip technic)

VAL'DMAN, V. A.: Master Biol Sci (diss) -- "Analysis of the reflex milk production under conditions of unilateral deafferentation of the mammary gland of goats". Leningrad, 1959. 19 pp (Acad Sci USSR, Inst of Physiology im I. P. Pavlov, Lab of Physiology of Agric Animals), 200 copies (KL, No 14, 1959, 119)

VAL'DMAN, V.A., zasluzhennyy deyatel' nauki RSFSR, prof.

Role of blood vessels in pathology. Vop. pat. krovi i krovoobr. no.5: 3-10 '59. (MIRA 15:4)

(BLOOD VESSELS) (PATHOLOGY)

VAL'DMAN, V.A., zasluzhennyy deyatel' nauki RSFSR, prof.

Interrelation of the vascular and nervous systems. Vop. pat. krovi i krovoobr. no.5:11-18 '59. (MIRA 15:4)
(BLOOD VESSELS) (NERVOUS SYSTEM)

VAL'DMAN, V.A., zasluzhennyy deyatel' nauki RSFSR, prof.

Arteriosclerosis and the vascular system. Vop. pat. krovi i krovoobr. no.5:109-118 '59. (MIRA 15:4)
(ARTERIOSCLEROSIS) (BLOOD VESSELS)

VAL'DMAN, V.A., zasluzhennyy deyatel' nauki, prof.

Arterial hypertension and the vascular system. Vop. pat. krovi i krovoobr. no.5:196-210 '59. (MIRA 15:4)
(HYPERTENSION) (BLOOD VESSELS)

VAL'DMAN, V.A.

Reflex effect from the mammary gland on the digestive apparatus in goats. Fiziol.zhur. 45 no.11:1372-1377 N '59. (MIRA 13:5)

1. From the I.P. Pavlov Institute of Physiology, Leningrad.
(UDDER physiol.)
(STOMACH physiol.)

VAL'DMAN, Viktor Aleksandrovich, zasl. deyatel' nauki RSFSR; LILENKO, S.I., red.; BUKHAROV, A.D., red.; SHEVCHENKO, F.Ya., tekhn. red.

[Arterial dystonia and dystrophy] Arterial'nye distonii i distrofii. Leningrad, Medgiz, 1961. 319 p. (MIRA 15:1)
(ARTERIES--DISEASES)

VAL'DMAN, V.A., prof., zasluzhennyy deyatel' nauki RSFSR

Focal infections, rheuamtic carditis and tonsillitis. Vop.pat. krovi i krovoobr. no.6:3-21 '61. (MIRA 16:3)
(INFECTION, FOCAL) (RHEUMATIC HEART DISEASE) (TONSILS—DISEASES)

VAL'DMAN, V.A., prof., zasluzhennyy deyatel' nauki RSFSR

Plethysmography of the foot, thermography, sedimentography, phleobtonometry and the endothelial cup test. Vop.pat.krovi.i krovoobr. no.6:22-45 '61. (MIRA 16:3)
(BLOOD—EXAMINATION) (PHYSIOLOGICAL APPARATUS)

MOLCHANOV, Nikolay Semenovich, prof., red.; VAL'DMAN, Viktor Aleksandrovich, zasl. deyatel' nauki RSFSR, prof., red.; GEMBITSKIY, Ye.V., red.; LEBEDEVA, Z.V., tekhn. red.

[Rheumatism and rheumatoids; problems of pathogenesis, classification, morphology, clinical aspect, treatment and prevention] Revmatizm i revmatoidy; voprosy patogeneza, klassifikatsii, morfologii, kliniki, lecheniia i profilaktiki. Leningrad, Medgiz, 1963. 318 p. (MIRA 16:5)

1. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Molchanov).

(RHEUMATIC FEVER)

VAL'DMAN, V.A., zasl. deyatel' nauki RSFSR, prof.; KVASOV, D.G., red.

[Problems in vascular pathology; formal address on February 24, 1964] Voprosy sosudistoi patologii; aktovaia rech' (24 fevralia 1964 g.). Leningrad, Leningr. pediatricheskii in-t, 1964. 17 p. (MIRA 17:6)

VAL'DMAN, V.A., zasl. deyatel' nauki RSFSR, prof.; ZAMYSLOVA, K.N., prof.; IL'INSKIY, B.V., prof.; KURSHAKOV, N.A.; LUKOMSKIY, P.Ye., prof.; MYASNIKOV, A.L., prof.; MOLCHANOV, N.S., prof.; RAYEVSKAYA, G.A., prof.; TEODORI, M.I., kand. med. nauk; CHERNOGOROV, I.A., prof.; TAREYEV, Ye.M., prof., otv. red.; OSTROVERKHOV, G.Ye., prof., glav. red.; SHAPIRO, Ya.Ye., prof., red. toma; LYUDKOVSKAYA, N.I., tekhn. red.

[Multivolume manual on internal diseases] Mnogotomnoe rukovodstvo po vnutrennim bolezniam. Otv. red. E.M.Tareev. Moskva, Izd-vo "Meditsina." Vol.2. [Diseases of the cardiovascular system] Bolezni serdechno-sosudistoi sistemy. Red. toma A.L. Miasnikov. 1964. 614 p. (MIRA 17:3)

1. Deystvitel'nyy chlen AMN SSSR (for Tareyev, Myasnikov, Lukomskiy, Molchanov). 2. Chlen-korrespondent AMN SSSR (for Kurshakov).

VAL'DMAN, V.A., prof., zasluzhennyy deyatel' nauki RSFSR; MAMYSHEVA, Ye.V.

Foreword. Trudy LPMI 31 no.2:3-6 '63. (MIRA 17:10)

1. Glavnyy vrach Bol'nitsy imeni Kuybysheva, Leningrad (for Mamysheva).

VAL'DMAN, V.A., prof., zasluzhennyy deyatel' nauki

Silent infections, allergic reactions and their control. Trudy LPMI 22 no.2:9-19 '63. (MIRA 17:10)

1. Iz kafedry fakul'tetskoy terapii Leningradskogo pediatricheskogo meditsinskogo instituta.

VAL'DMAN, V.A., prof., zasluzhennyy deyatel' nauki RSFSR

Classification of vasculites. Trudy LPMI 31 no.2:189-202 '63.
(MIRA 17:10)

1. Iz kafedry fakul'tetskoy terapii Leningradskogo pediatricheskogo meditsinskogo instituta.

VAL'DMAN, V.A., prof., zasluzhennyy deyatel' nauki RSFSR

Conclusion. Trudy LPMI 31 no.2:455-457 '63. (MIRA 17:10)

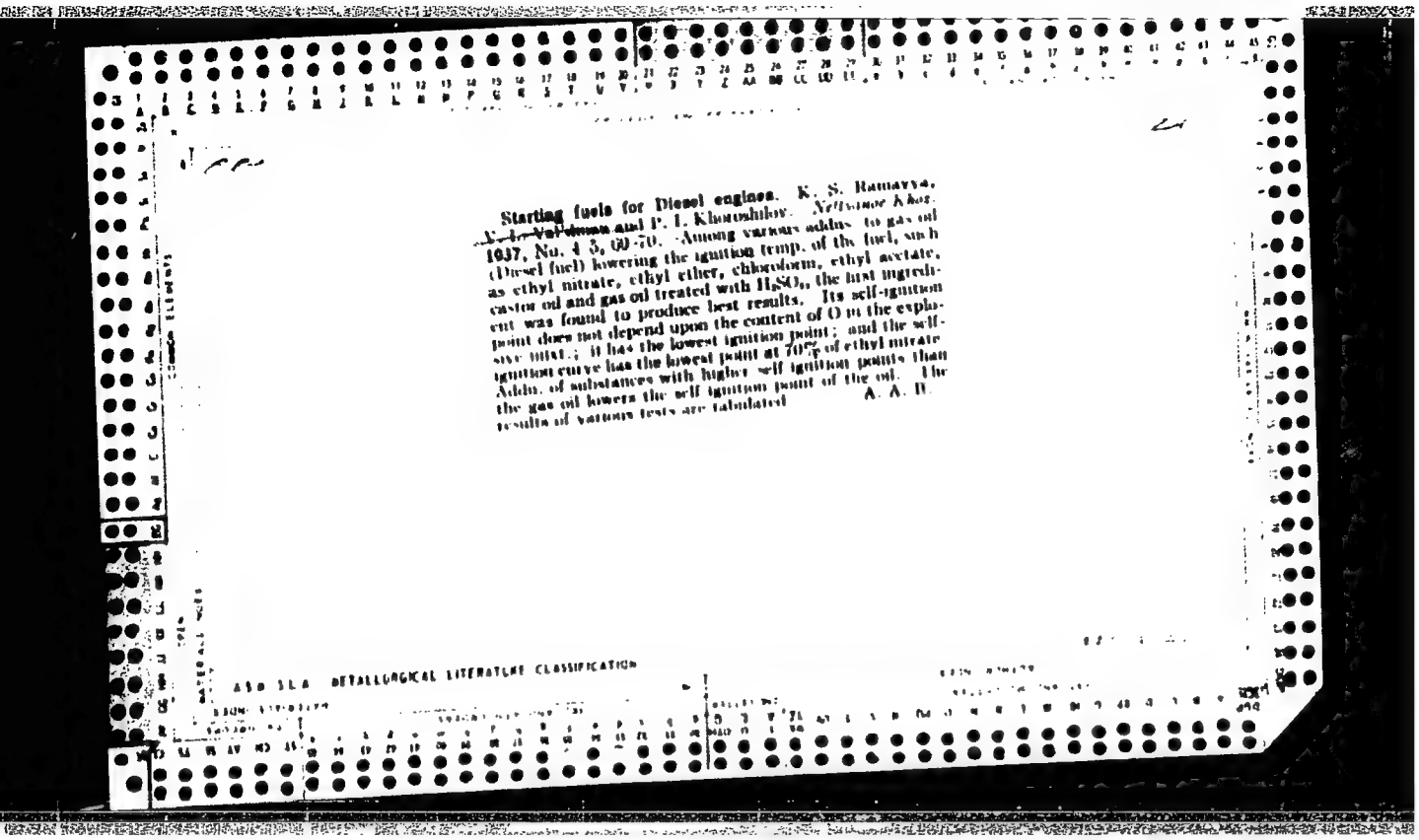
VAL'DMAN, V.A. (Leningrad)

Nikolai Pavlovich Kravkov and his theory of vascular function; on the centennary of his birth. Fiziol.zhur. 51 no.7:897-899 '65. (MIRA 18:10)

VAL'DNER, Vladimir Aleksandrovich; STEPANOV, V.M., red.; GORYACHKINA, R.A., tekhn. red.

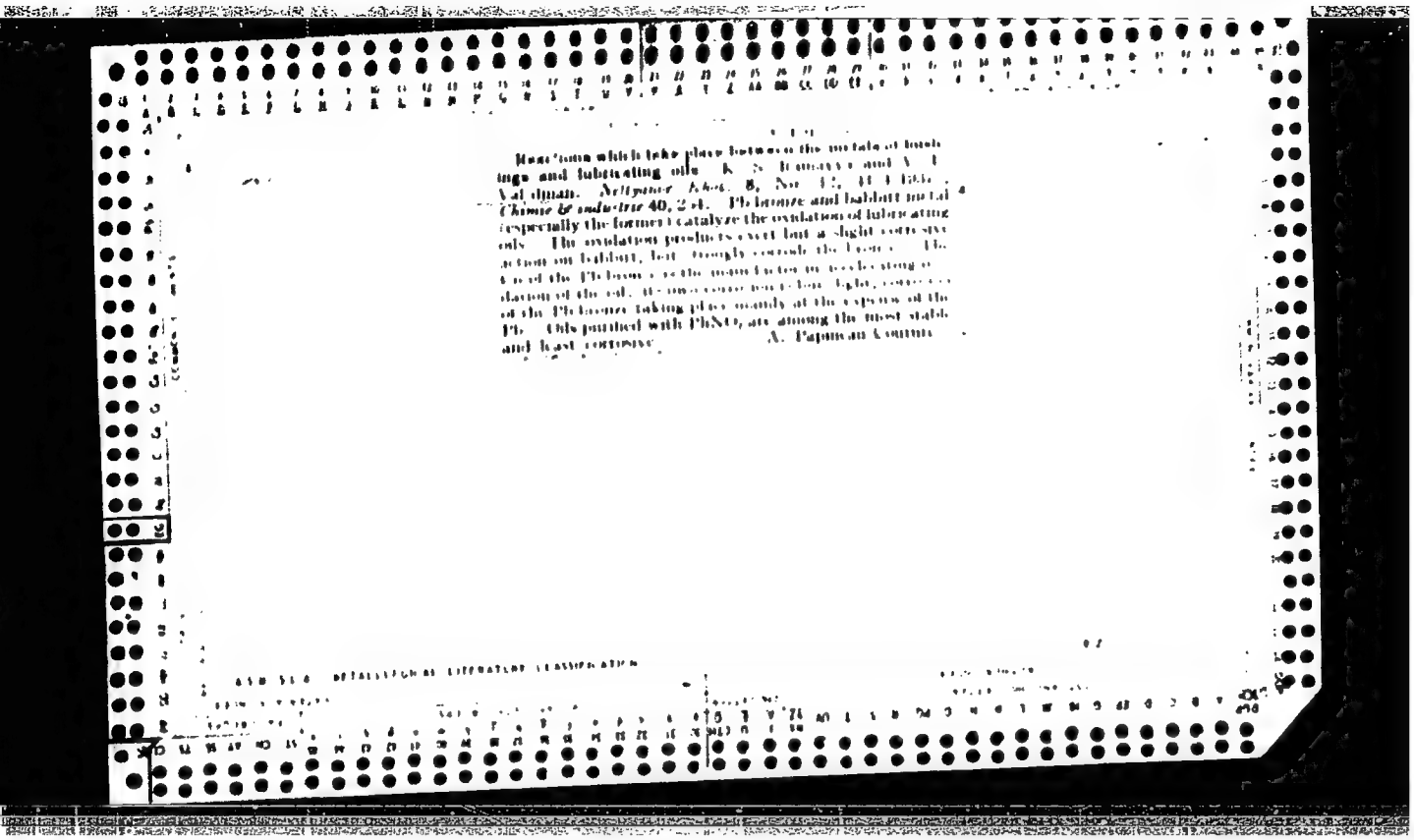
[Handbook for the excavator operator] Pamiatka mashinista ekskavatora. Moskva, Avtotransizdat, 1963. 38 p. (MIRA 16:6)

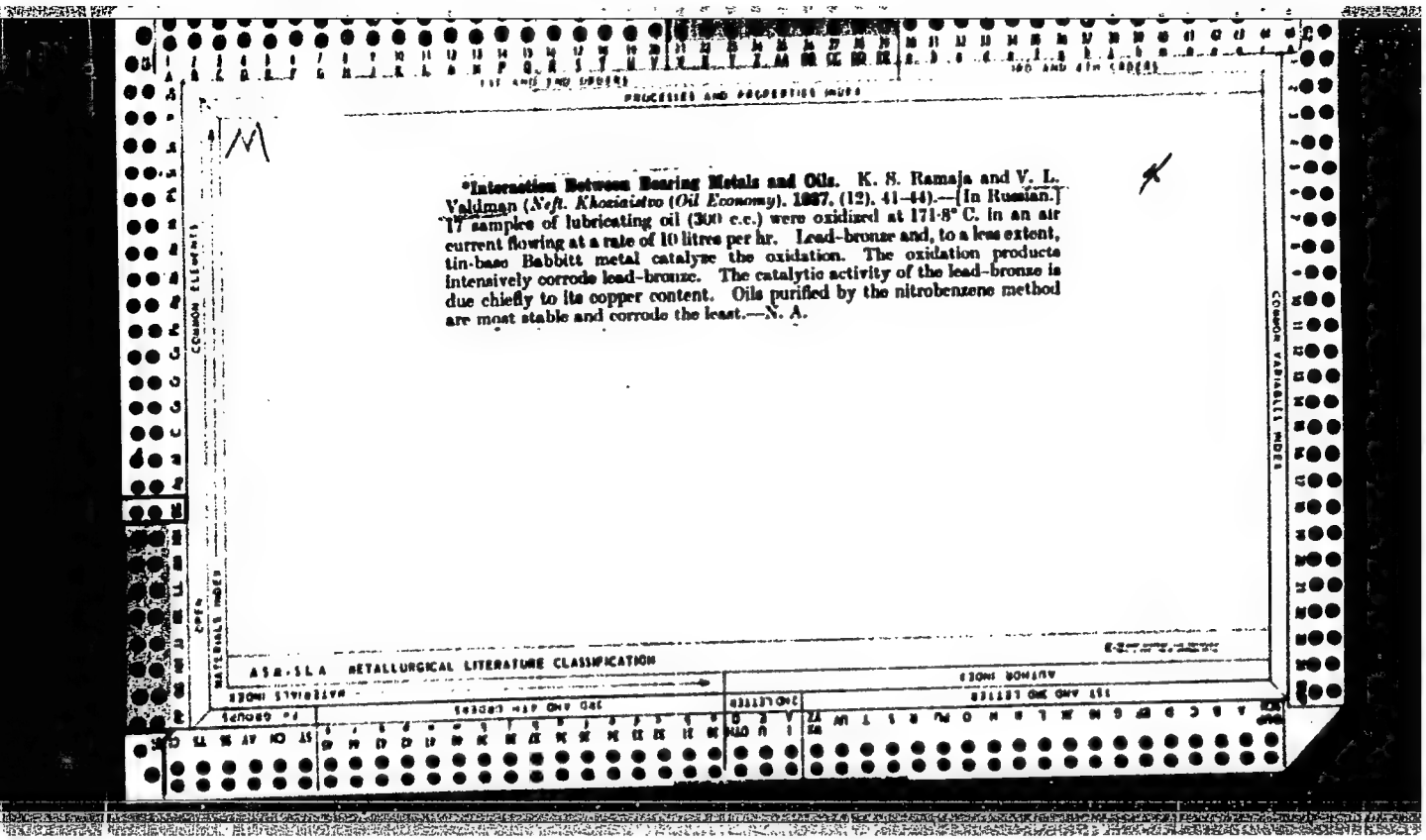
(Excavating machinery—Safety measures)



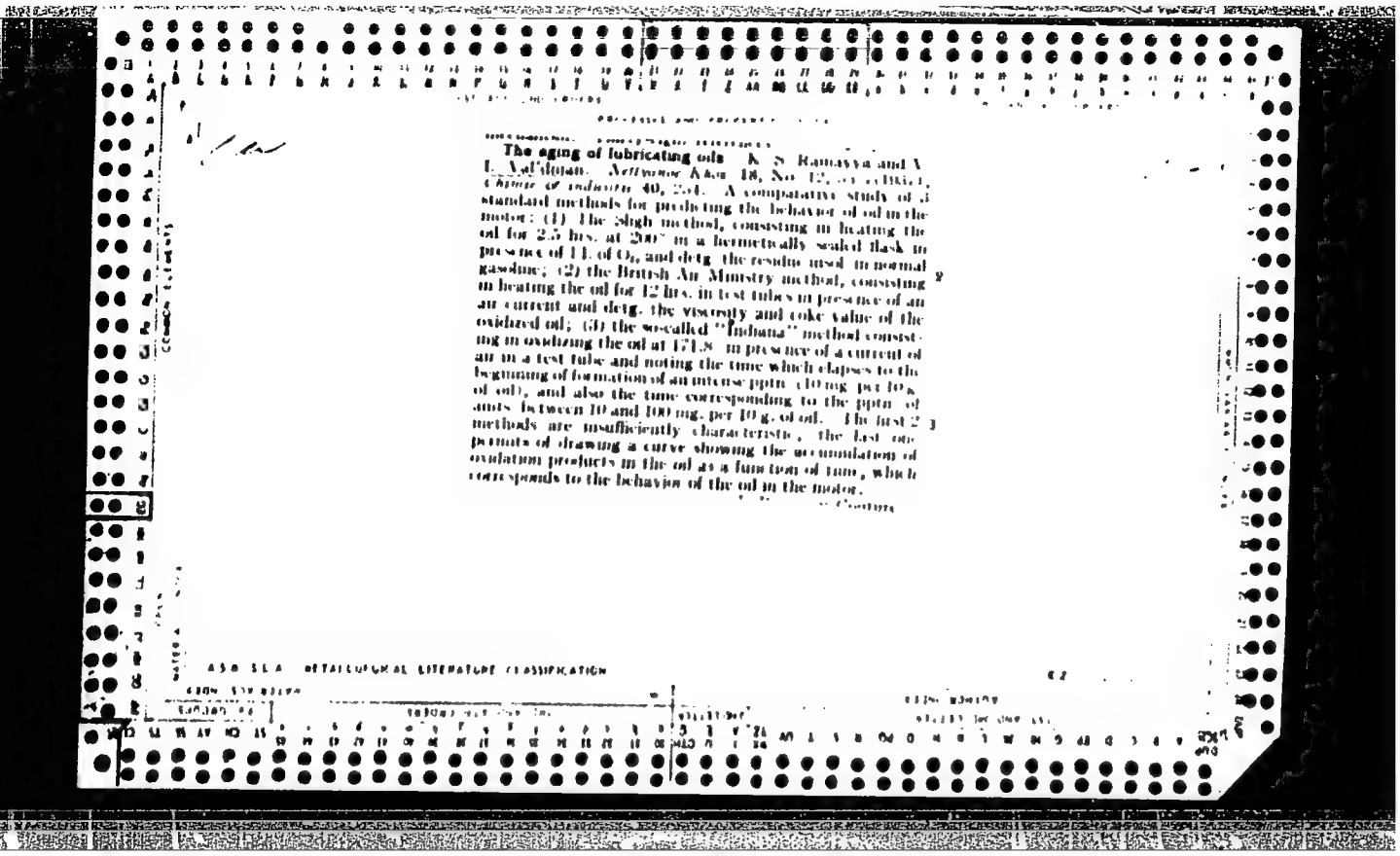
Starting fuels for Diesel engines. K. S. Ramayya, ~~L. I. Veldman~~ and P. I. Khoroshilov. *Neftyanoe Khoz.* 1937, No. 4 3, 69-70. Among various additions to gas oil (Diesel fuel) lowering the ignition temp. of the fuel, such as ethyl nitrate, ethyl ether, chloroform, ethyl acetate, castor oil and gas oil treated with H_2SO_4, the last ingredient was found to produce best results. Its self-ignition point does not depend upon the content of O in the explosive mixt.; it has the lowest ignition point; and the self-ignition curve has the lowest point at 70% of ethyl nitrate. Addn. of substances with higher self ignition points than the gas oil lowers the self ignition point of the oil. The results of various tests are tabulated A. A. B.

A50 SLA METALLURGICAL LITERATURE CLASSIFICATION

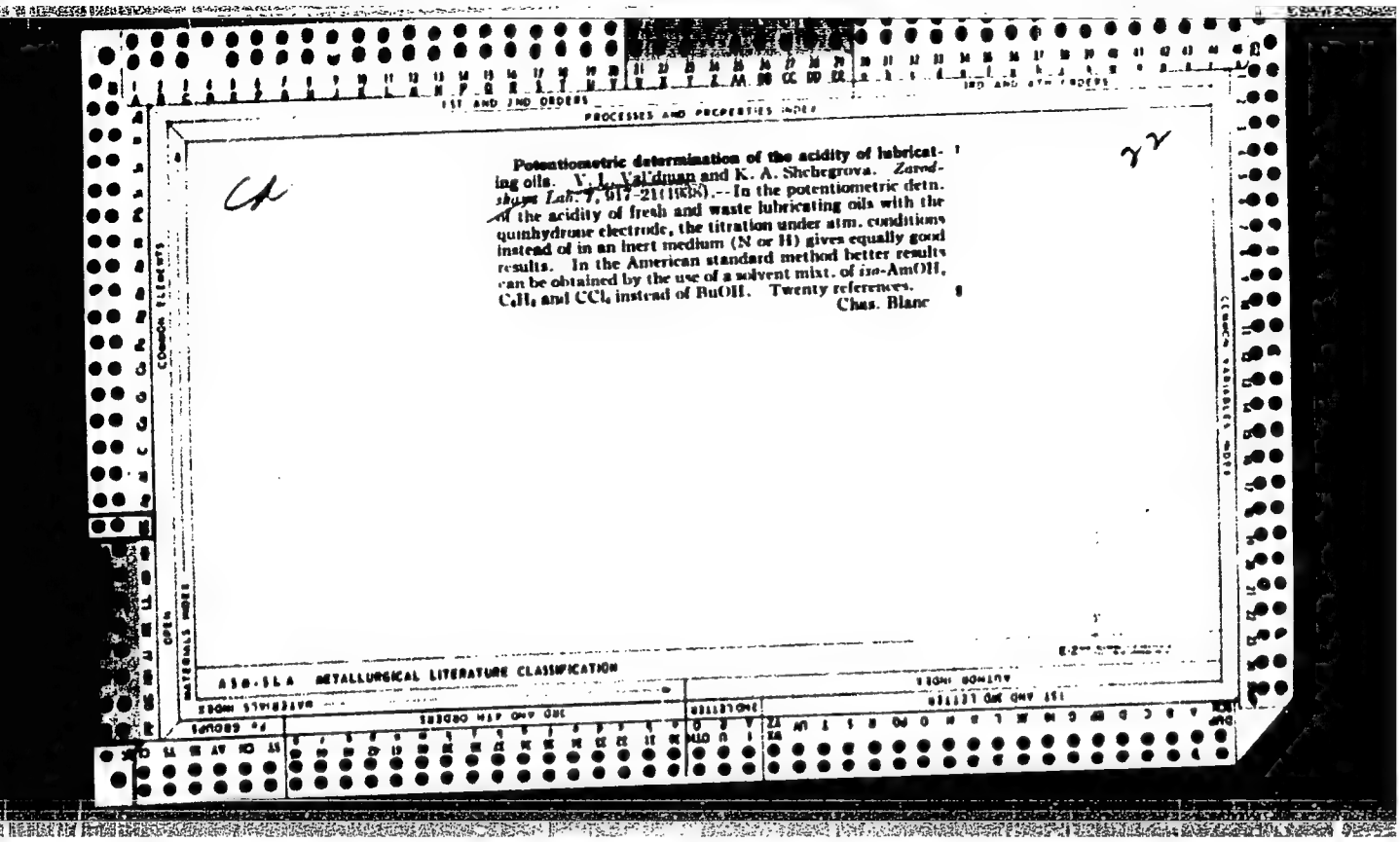




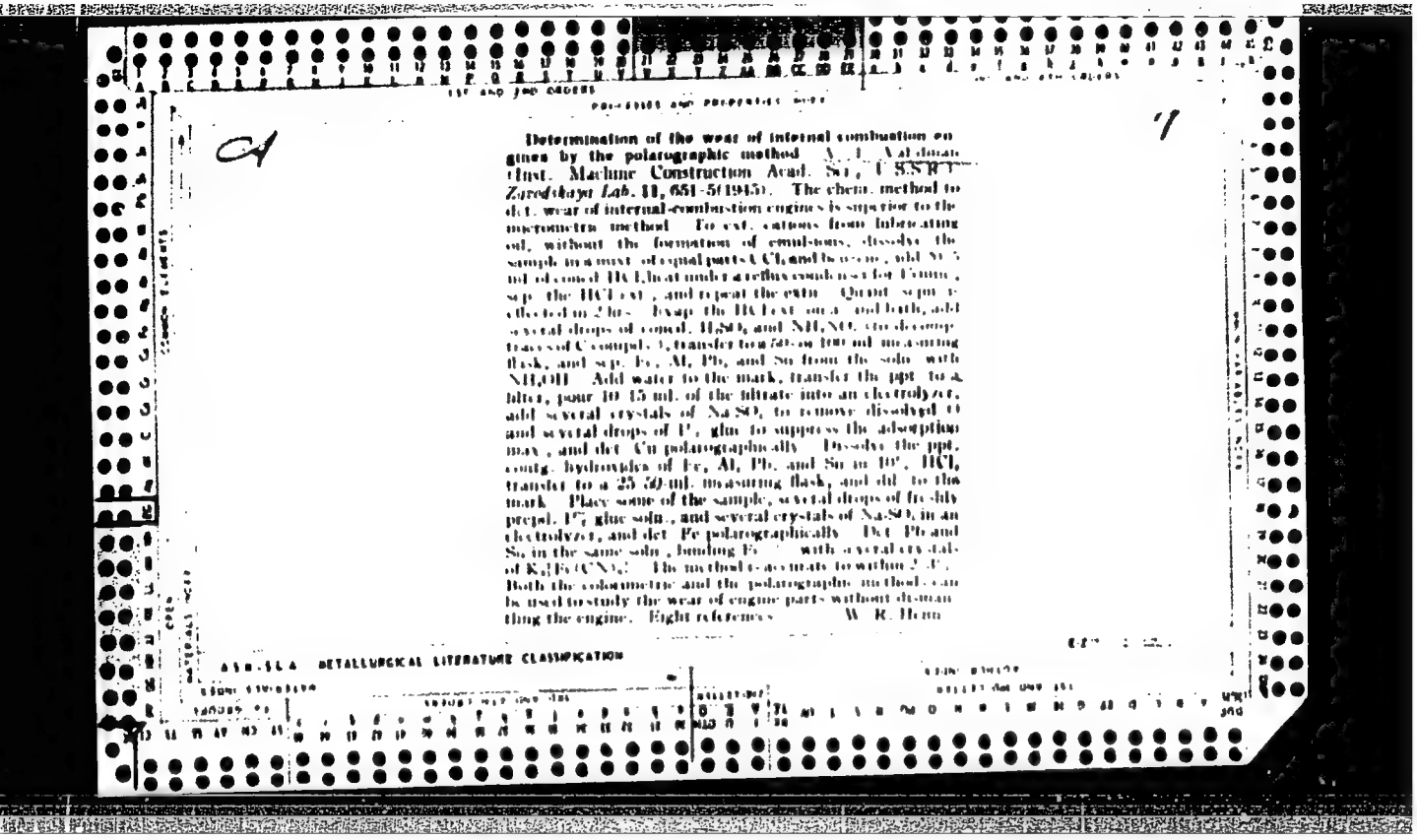
***Interaction Between Bearing Metals and Oils.** K. S. Ramaja and V. L. Valdman (*Neft. Khoziaistvo* (*Oil Economy*), 1937, (12), 41–44).—[In Russian.] 17 samples of lubricating oil (300 c.c.) were oxidized at 171·8° C. in an air current flowing at a rate of 10 litres per hr. Lead-bronze and, to a less extent, tin-base Babbitt metal catalyse the oxidation. The oxidation products intensively corrode lead-bronze. The catalytic activity of the lead-bronze is due chiefly to its copper content. Oils purified by the nitrobenzene method are most stable and corrode the least.—N. A.



The aging of lubricating oils K. S. Ramayya and V. L. Vaidyan. *Nettoyage Anal.* 18, No. 12, [illegible]; *Chimie & industrie* 40, 754. A comparative study of 3 standard methods for predicting the behavior of oil in the motor: (1) The Singh method, consisting in heating the oil for 2.5 hrs. at 200° in a hermetically sealed flask in presence of 1 l. of O_2 and deg. the residue used in normal gasoline; (2) the British Air Ministry method, consisting in heating the oil for 12 hrs. in test tubes in presence of an air current and deg. the viscosity and coke value of the oxidized oil; (3) the so-called "Indiana" method consisting in oxidizing the oil at 171.8° in presence of a current of air in a test tube and noting the time which elapses to the beginning of formation of an intense ppn. (10 mg. per 10 g. of oil), and also the time corresponding to the ppn. of amts. between 10 and 100 mg. per 10 g. of oil. The first 2 methods are insufficiently characteristic, the last one permits of drawing a curve showing the accumulation of oxidation products in the oil as a function of time, which corresponds to the behavior of the oil in the motor.

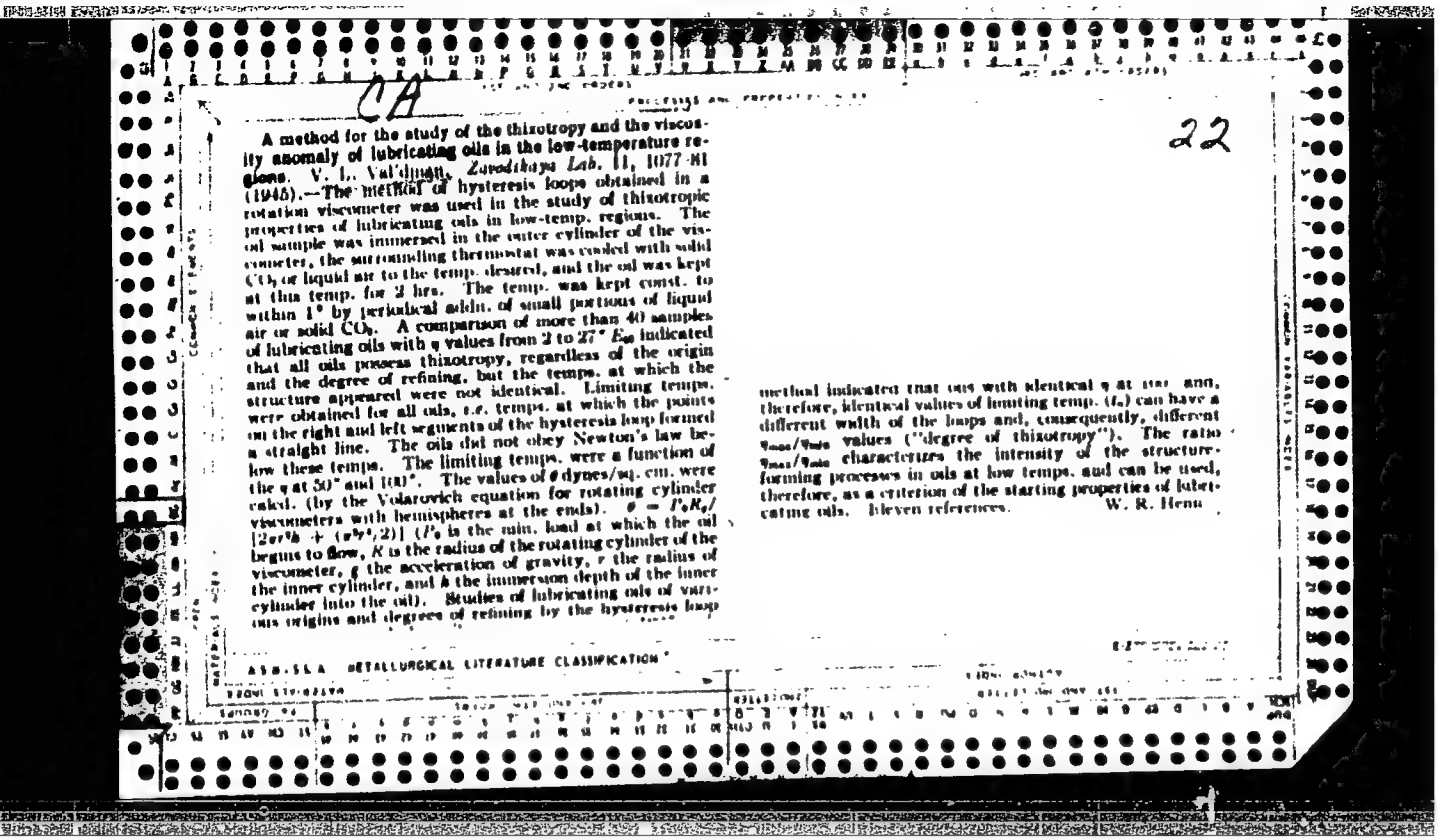


Potentiometric determination of the acidity of lubricating oils. V. L. Val'dman and K. A. Shchegrova. *Zavod. skaya Lab.* 7, 917–21(1938).—In the potentiometric detn. of the acidity of fresh and waste lubricating oils with the quinhydrone electrode, the titration under atm. conditions instead of in an inert medium (N or H) gives equally good results. In the American standard method better results can be obtained by the use of a solvent mixt. of *iso*-AmOH, C_6H_6 and CCl_4 instead of BuOH. Twenty references.
Chas. Blanc



Determination of the wear of internal combustion engines by the polarographic method A. I. Antonov (Inst. Machine Construction Acad. Sci., U.S.S.R.) *Zavodskaya Lab.* **11**, 651–5 (1945). The chem. method to det. wear of internal-combustion engines is superior to the micrometric method. To ext. cations from lubricating oil, without the formation of emulsions, dissolve the sample in a mixt. of equal parts CCl_4 and benzene, add $\frac{1}{10}$ its vol. of concd. HCl, heat under a reflux condenser for 1 hour, sep. the HCl ext., and repeat the extn. Quant. sep. is effected in 2 hrs. Evap. the HCl ext. on a sand bath, add several drops of concd. H_2SO_4 and NH_4NO_3, char the evapd. residue in a porcelain crucible, transfer to a 50-ml. measuring flask, and sep. Fe, Al, Pb, and Sn from the soln. with NH_4OH. Add water to the mark, transfer the ppt. to a filter, pour 10–15 ml. of the filtrate into an electrolyzer, add several crystals of Na_2SO_3 to remove dissolved O_2 and several drops of F^- glue to suppress the adsorption max., and det. Cu polarographically. Dissolve the ppt. contg. hydroxides of Fe, Al, Pb, and Sn in 10% HCl, transfer to a 25–50-ml. measuring flask, and dil. to the mark. Place some of the sample, several drops of freshly prepd. F^- glue soln., and several crystals of Na_2SO_3 in an electrolyzer, and det. Pb polarographically. Det. Pb and Sn in the same soln., binding Fe[illegible] with several crystals of $K_4Fe(CN)_6$. The method is accurate to within 2–3%. Both the colorimetric and the polarographic method can be used to study the wear of engine parts without dismantling the engine. Eight references. W. R. Horn

A59-51A METALLURGICAL LITERATURE CLASSIFICATION



CA

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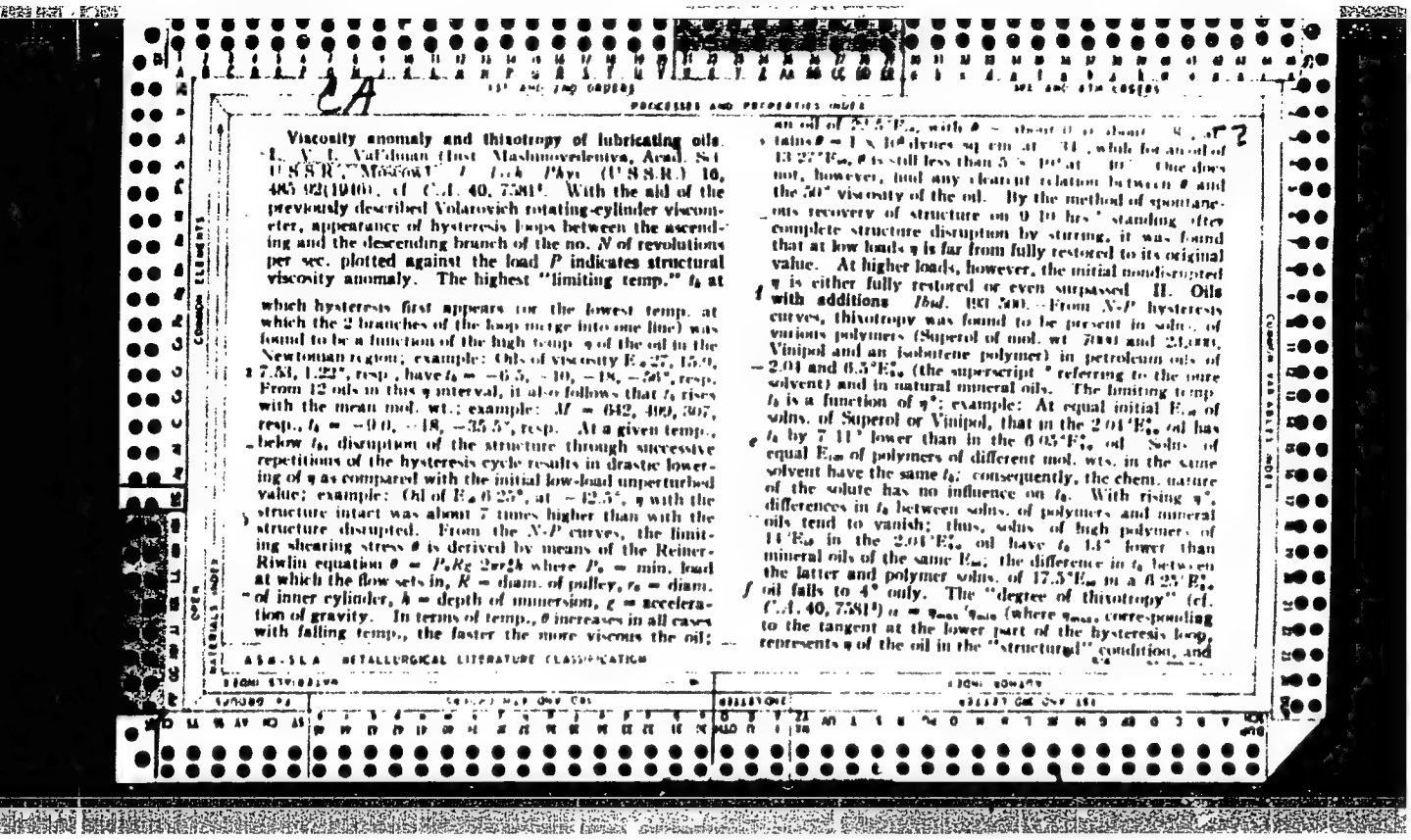
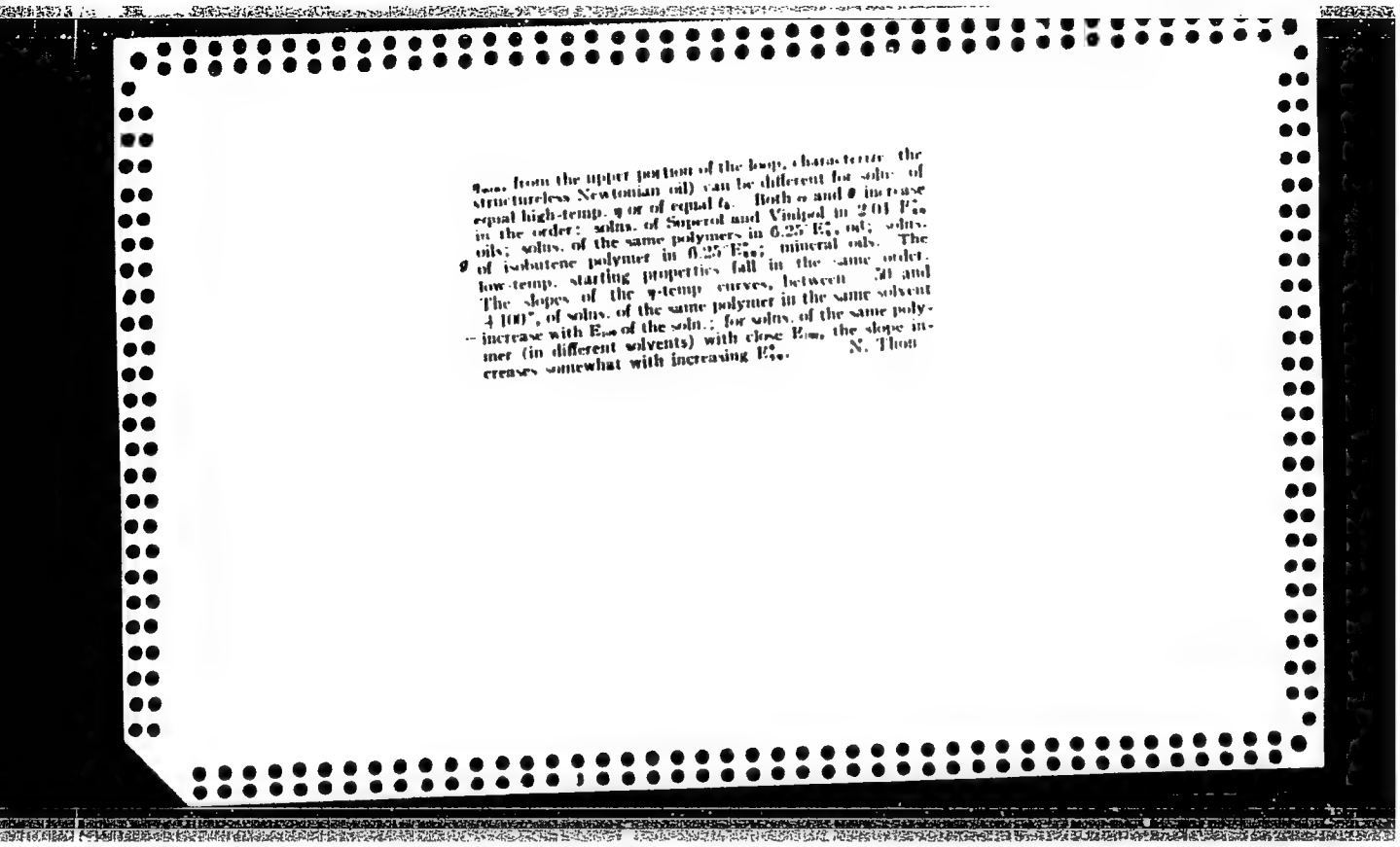
A method for the study of the thixotropy and the viscosity anomaly of lubricating oils in the low-temperature regions. V. I. Vat'dinatz. *Zavodskaya Lab.* 11, 1077-81 (1945).—The method of hysteresis loops obtained in a rotation viscometer was used in the study of thixotropic properties of lubricating oils in low-temp. regions. The oil sample was immersed in the outer cylinder of the viscometer, the surrounding thermostat was cooled with solid CO_2 or liquid air to the temp. desired, and the oil was kept at this temp. for 2 hrs. The temp. was kept const. to within 1° by periodical addn. of small portions of liquid air or solid CO_2. A comparison of more than 40 samples of lubricating oils with η values from 2 to 27° *E*₅₀ indicated that all oils possess thixotropy, regardless of the origin and the degree of refining, but the temps. at which the structure appeared were not identical. Limiting temps. were obtained for all oils, *i.e.* temps. at which the points on the right and left segments of the hysteresis loop formed a straight line. The oils did not obey Newton's law below these temps. The limiting temps. were a function of the η at 50° and 100°. The values of θ dynes/sq. cm. were calcd. (by the Volarovich equation for rotating cylinder viscometers with hemispheres at the ends). $\theta = P_0 R_1 / [2\pi r^2 h + (\pi r^3/2)]$ (P_0 is the min. load at which the oil begins to flow, R is the radius of the rotating cylinder of the viscometer, g the acceleration of gravity, r the radius of the inner cylinder, and h the immersion depth of the inner cylinder into the oil). Studies of lubricating oils of various origins and degrees of refining by the hysteresis loop method indicated that oils with identical η at 100° and, therefore, identical values of limiting temp. (t_0) can have a different width of the loops and, consequently, different η_{max}/η_{min} values ("degree of thixotropy"). The ratio η_{max}/η_{min} characterizes the intensity of the structure-forming processes in oils at low temps. and can be used, therefore, as a criterion of the starting properties of lubricating oils. Eleven references. W. R. Henn

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

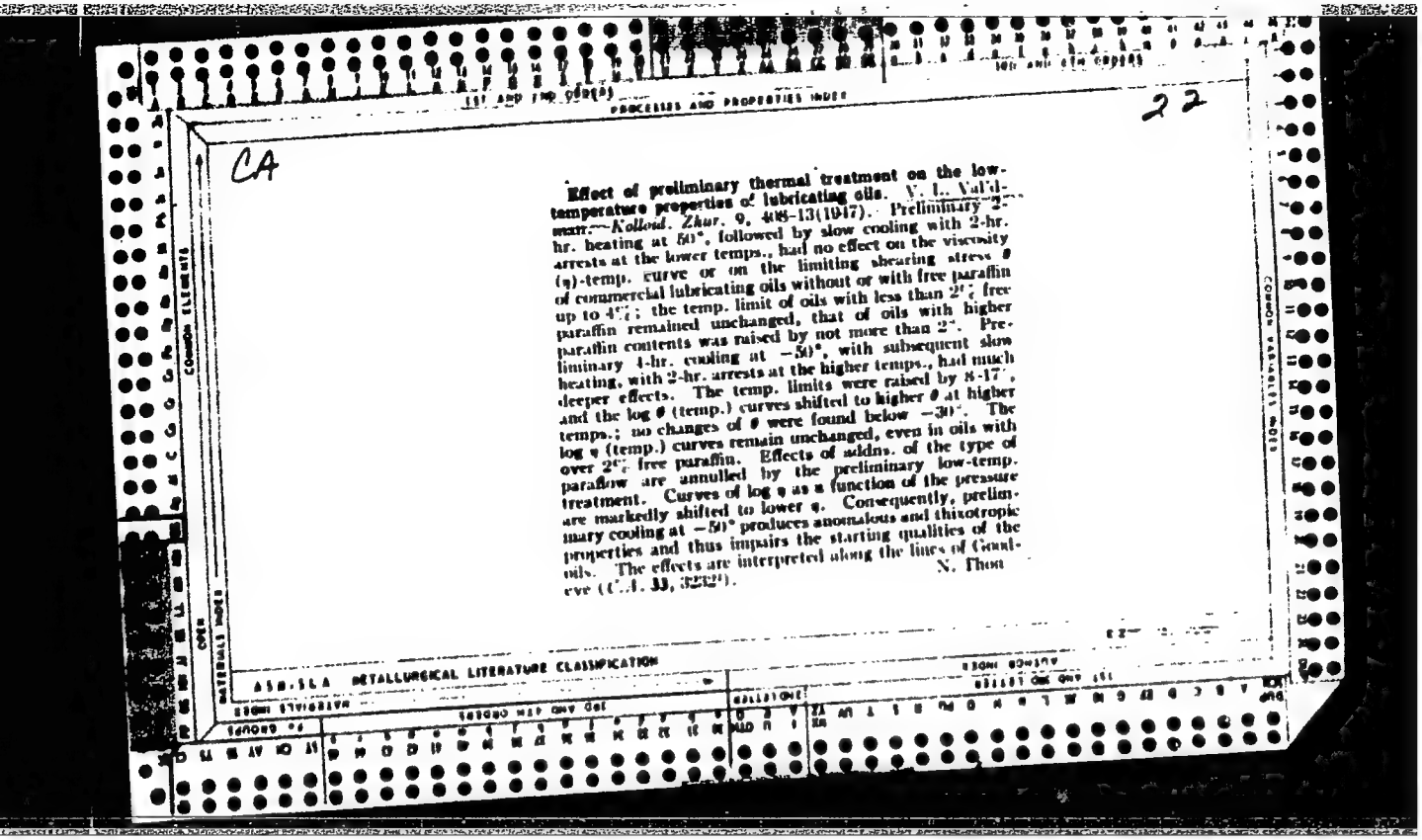


Viscosity anomaly and thixotropy of lubricating oils. I. V. I. Vaĭdoman (Inst. Mashinovedeniya, Acad. Sci. U.S.S.R., Moscow). *J. Tech. Phys.* (U.S.S.R.) 10, 485-92(1940). cf. *C.A.* 40, 7581[1]. With the aid of the previously described Volarovich rotating-cylinder viscometer, appearance of hysteresis loops between the ascending and the descending branch of the no. *N* of revolutions per sec. plotted against the load *P* indicates structural viscosity anomaly. The highest "limiting temp." t_h at which hysteresis first appears (or the lowest temp. at which the 2 branches of the loop merge into one line) was found to be a function of the high temp. η of the oil in the Newtonian region; example: Oils of viscosity E_{∞} 27, 15.9, 7.51, 1.22°, resp., have t_h = −6.5, −10, −18, −26°, resp. From 12 oils in this η interval, it also follows that t_h rises with the mean mol. wt.; example: M = 642, 499, 307, resp., t_h = −9.0, −18, −35.5°, resp. At a given temp., below t_h, disruption of the structure through successive repetitions of the hysteresis cycle results in drastic lowering of η as compared with the initial low-load unperturbed value; example: Oil of E_{∞} 0.25°, at −12.5°, η with the structure intact was about 7 times higher than with the structure disrupted. From the *N-P* curves, the limiting shearing stress θ is derived by means of the Reiner-Riwlin equation $\theta = P_0 Rg\ 2\pi r_0^2 h$ where P_0 = min. load at which the flow sets in, R = diam. of pulley, r_0 = diam. of inner cylinder, h = depth of immersion, g = acceleration of gravity. In terms of temp., θ increases in all cases with falling temp., the faster the more viscous the oil; an oil of 25.5°E_{∞}, with θ = about 0 at about 8°, attains $\theta = 1 \times 10^6$ dynes sq. cm. at −31°, while for an oil of 13.27°E_{∞}, θ is still less than 5 × 10⁵ at −60°. One does not, however, find any clear-cut relation between θ and the 50° viscosity of the oil. By the method of spontaneous recovery of structure on 9-10 hrs.' standing after complete structure disruption by stirring, it was found that at low loads η is far from fully restored to its original value. At higher loads, however, the initial nondisrupted η is either fully restored or even surpassed. II. **Oils with additions** *Ibid.* 493-500. From *N-P* hysteresis curves, thixotropy was found to be present in solns. of various polymers (Superol of mol. wt. 70,000 and 23,000, Vinipol and an isobutene polymer) in petroleum oils of 2.04 and 0.3°E_{∞} (the superscript ° referring to the pure solvent) and in natural mineral oils. The limiting temp. t_h is a function of η°; example: At equal initial E_{∞} of solns. of Superol or Vinipol, that in the 2.04°E_{∞} oil has t_h by 7.11° lower than in the 0.05°E_{∞} oil. Solns. of equal E_{∞} of polymers of different mol. wts. in the same solvent have the same t_h; consequently, the chem. nature of the solute has no influence on t_h. With rising η°, differences in t_h between solns. of polymers and mineral oils tend to vanish; thus, solns. of high polymers of 14°E_{∞} in the 2.04°E_{∞} oil have t_h 1.4° lower than mineral oils of the same E_{∞}; the difference in t_h between the latter and polymer solns. of 17.5°E_{∞} in a 0.25°E_{∞} oil falls to 4° only. The "degree of thixotropy" (cf. *C.A.* 40, 7581[1]) $a = \eta_{max}/\eta_{min}$ (where η_{max} corresponding to the tangent at the lower part of the hysteresis loop, represents η of the oil in the "structural" condition, and



from the upper portion of the loop, characteriz the structureless Newtonian oil) can be different for solns of equal high-temp. η or of equal fa. Both σ and θ increase in the order: solns. of Superol and Vistanex in 2.01 Pas oils; solns. of the same polymers in 6.25 Pas oil; solns. of isobutene polymer in 0.25 Pas; mineral oils. The low-temp. starting properties fall in the same order. The slopes of the η-temp curves, between 30 and 100°, of solns. of the same polymer in the same solvent increase with Pas of the soln.; for solns. of the same polymer (in different solvents) with close Pas, the slope increases somewhat with increasing Pas.

N. Thon



CA

22

Effect of preliminary thermal treatment on the low-temperature properties of lubricating oils. V. L. Val'dmann.—*Kolloid. Zhur.* 9, 408–13(1947). Preliminary 2-hr. heating at 50°, followed by slow cooling with 2-hr. arrests at the lower temps., had no effect on the viscosity (η)-temp. curve or on the limiting shearing stress θ of commercial lubricating oils without or with free paraffin up to 4%; the temp. limit of oils with less than 2% free paraffin remained unchanged, that of oils with higher paraffin contents was raised by not more than 2°. Preliminary 4-hr. cooling at −50°, with subsequent slow heating, with 2-hr. arrests at the higher temps., had much deeper effects. The temp. limits were raised by 8–17°, and the log θ (temp.) curves shifted to higher θ at higher temps.; no changes of θ were found below −30°. The log η (temp.) curves remain unchanged, even in oils with over 2% free paraffin. Effects of addns. of the type of paraflow are annulled by the preliminary low-temp. treatment. Curves of log η as a function of the pressure are markedly shifted to lower η. Consequently, preliminary cooling at −50° produces anomalous and thixotropic properties and thus impairs the starting qualities of the oils. The effects are interpreted along the lines of Goudeve (*C.A.* **33**, 3252⁹). N. Thon

PA 45/49T19

USSR/Chemistry - Lubricants Jan/Feb 49
Chemistry - Thixotropy, of Lubricating Oils

"Action of Oxidation Products Upon the Thixotropic Properties of Lubricating Oils at Low Temperatures," V. L. Val'dman, Sci Res Inst of Combustible and Lubricating Materials, V. S., NII GSM, 4 pp

"Kolloid Zhur" Vol XI, No 1

Concludes that 2 - 3% carbold content in lubricating greases does not affect their thixotropic properties at low temperatures. Carbold content in excess of 3% results in formation of a lattice-type structure. Presence of oxidation products (acids and asphaltene)

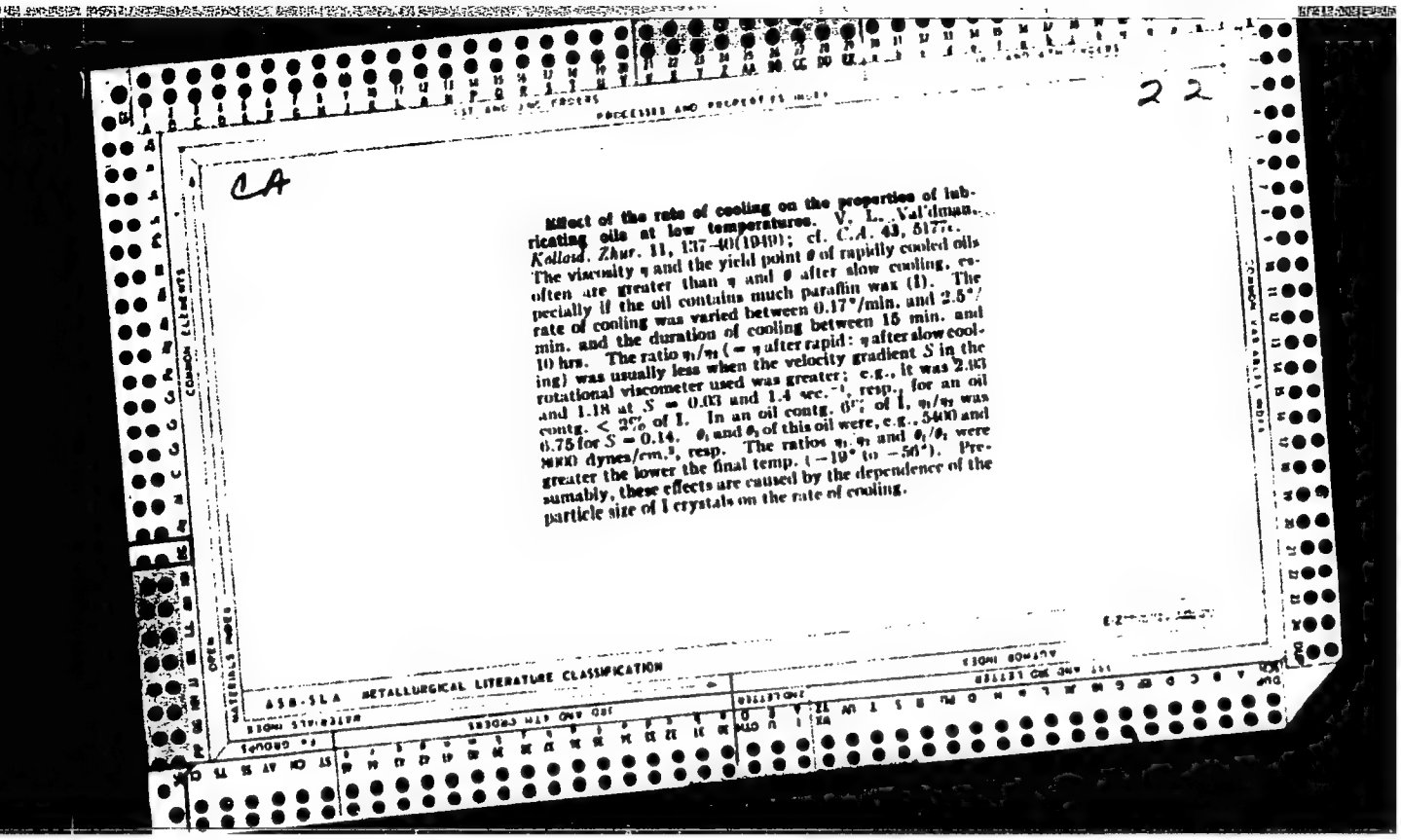
45/49T19

USSR/Chemistry - Lubricants (Contd) Jan/Feb 49

results in lowering the greases' thixotrophic properties, and causes very noticeable peptizing action on structure formed. Submitted 10 Oct 47.

45/49T19

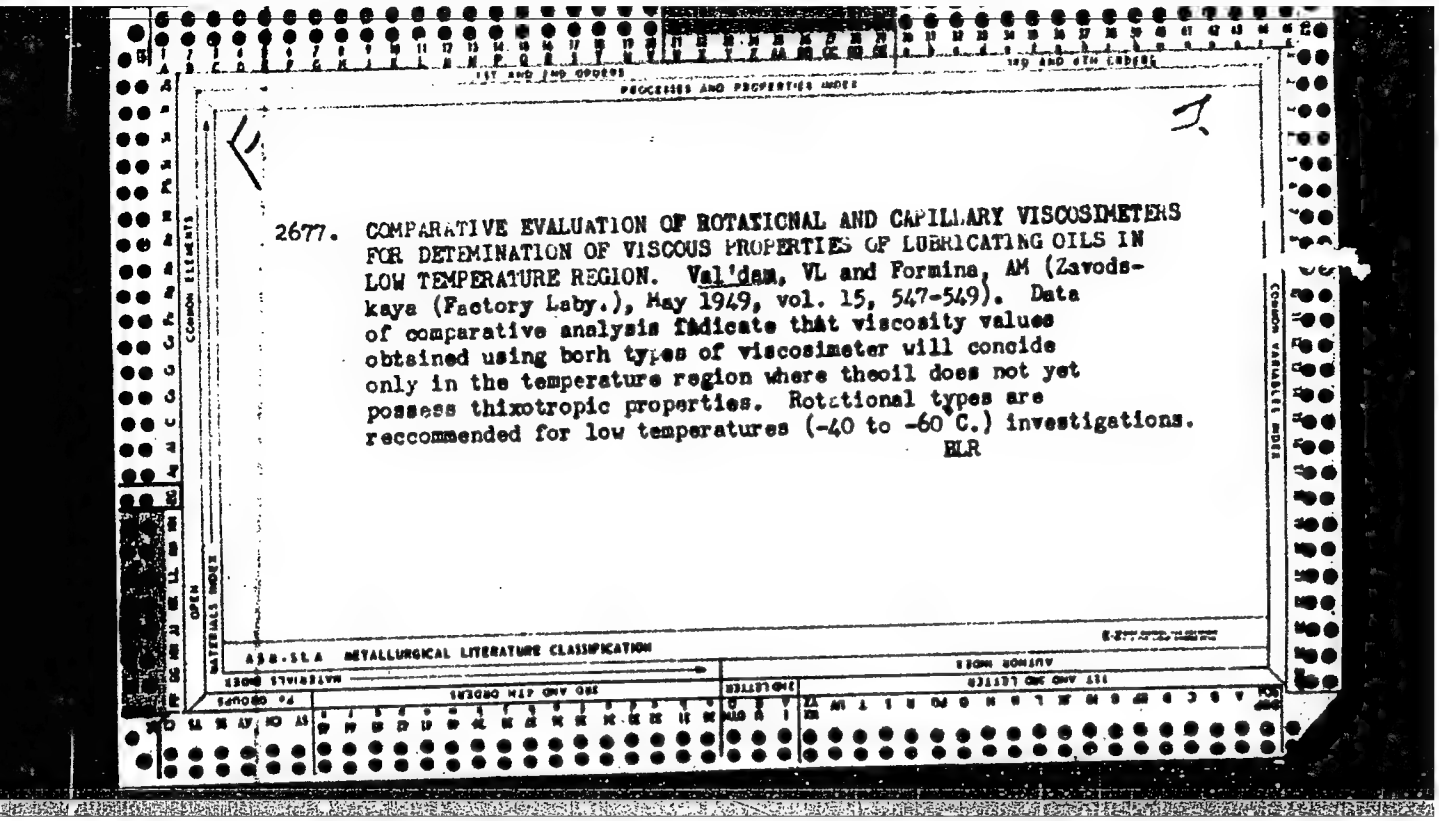
VAL'DMAN, V. L.



CA

22

Effect of the rate of cooling on the properties of lubricating oils at low temperatures. V. L. Val'dman. *Kolloid. Zhur.* 11, 137–40(1949); cf. *C.A.* 43, 5177c. The viscosity η and the yield point θ of rapidly cooled oils often are greater than η and θ after slow cooling, especially if the oil contains much paraffin wax (I). The rate of cooling was varied between 0.17°/min. and 2.5°/min. and the duration of cooling between 15 min. and 10 hrs. The ratio η_1/η_2 ($= \eta$ after rapid : η after slow cooling) was usually less when the velocity gradient S in the rotational viscometer used was greater; e.g., it was 2.03 and 1.18 at $S = 0.03$ and 1.4 sec.$^{-1}$, resp., for an oil contg. < 2% of I. In an oil contg. 6% of I, η_1/η_2 was 0.75 for $S = 0.14$. θ_1 and θ_2 of this oil were, e.g., 5400 and 3000 dynes/cm.^{2}, resp. The ratios η_1/η_2 and θ_1/θ_2 were greater the lower the final temp. (−10° to −50°). Presumably, these effects are caused by the dependence of the particle size of I crystals on the rate of cooling.



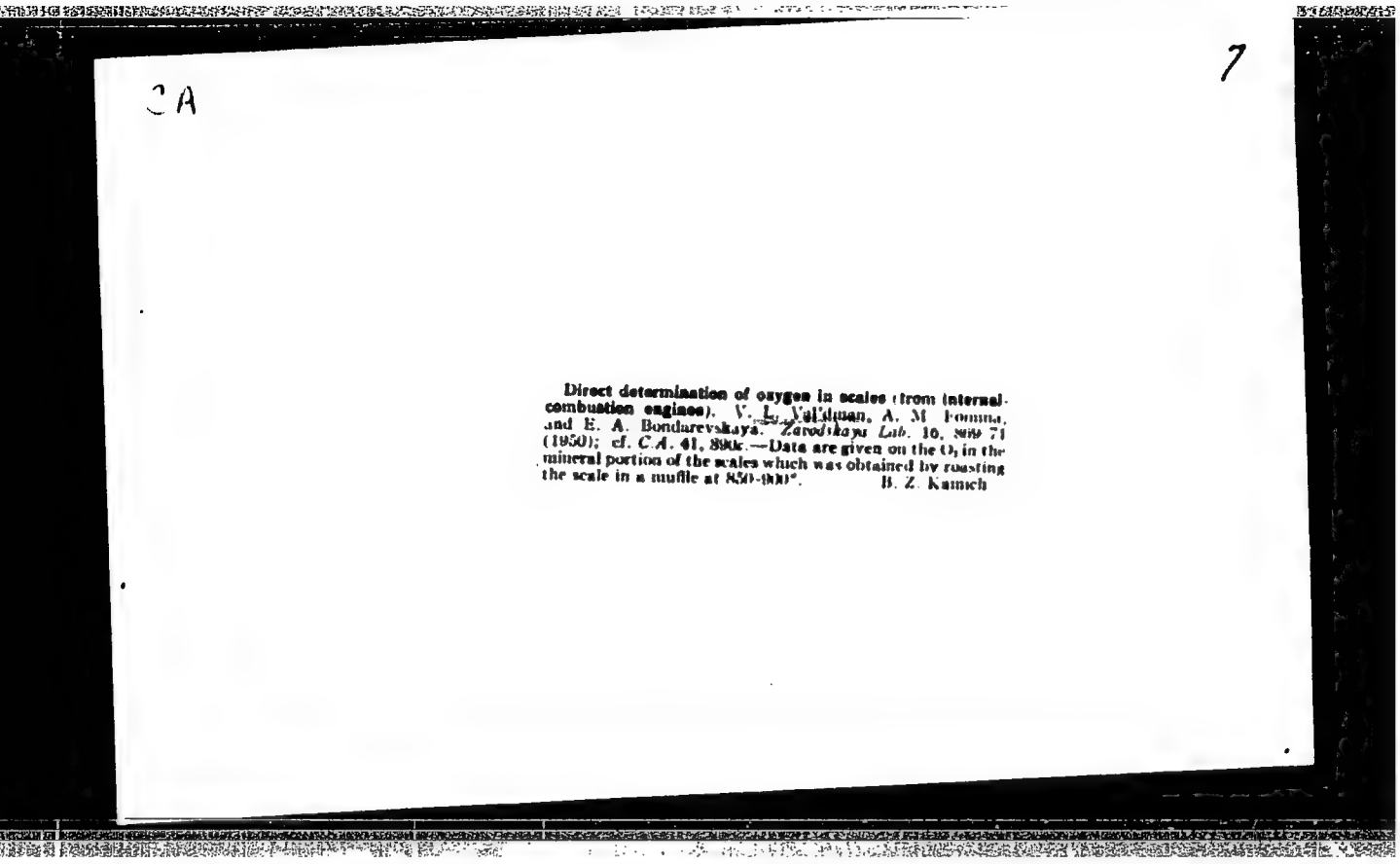
PROCESSES AND PROPERTIES INDEX

2677. COMPARATIVE EVALUATION OF ROTATIONAL AND CAPILLARY VISCOSIMETERS FOR DETEMINATION OF VISCOUS PROPERTIES OF LUBRICATING OILS IN LOW TEMPERATURE REGION. Val'dam, VL and Formina, AM (Zavodskaya (Factory Laby.), May 1949, vol. 15, 547-549). Data of comparative analysis indicate that viscosity values obtained using borh types of viscosimeter will concide only in the temperature region where theoil does not yet possess thixotropic properties. Rotational types are reccommended for low temperatures (-40 to -60 C.) investigations.
BLR

A58-51A METALLURGICAL LITERATURE CLASSIFICATION

C. A.

The physico-mechanical properties of lubricating oils at their temperature of solidification. V. L. Val'dman and A. M. Fomina. *Kolloid. Zhur.* 12, 342-6(1950).—The oils studied could be classified in 2 groups. One group included oils contg. greater than 2% paraffin hydrocarbons; they solidified at −5 to 5° and had at the solidification temp. max. viscosity (η) of 10–3000 and min. viscosity (η_0) (after destruction of the structure) between 3 and 360 g./cm. sec., the ratio η_1/η_0 being less than 9. The paraffin content of the other group was less than 1%, the oils solidified below −13°, had η_1 between 1800 and 10⁶, and η_0 between 470 and 15,000 the ratio η_1/η_0 being 2 to 310. The yield points of all oils varied between 20 and 320 dynes/sq. cm. The common opinion that solidification occurs at the temp. at which η is 100 is incorrect. J. J. Bikerman



CA

7

Direct determination of oxygen in scales (from internal-combustion engines). V. L. Val'dman, A. M. Ivonina, and E. A. Bondarevskaya. *Zavodskaya Lab.* 16, 869-71 (1950); cf. *C.A.* 41, 890k.—Data are given on the O_2 in the mineral portion of the scales which was obtained by roasting the scale in a muffle at 850-900°. B. Z. Kamich

VAL'DMAN, V. L.

"Viscosity and Thixotropic Properties of Lubricants at Low Temperatures." Sub 1 Mar 51, Petroleum Inst, Acad Sci USSR.

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55.

PA 196T3

VAL 'EMAN, V. L.

USSR/Chemistry - Lubricants Sep/Oct 51

"On the Type of Flow of Structurized Systems (of Lubricating Oils at Low Temperatures)," V. L. Val'dman, Moscow

"Kolloid Zhur" Vol XIII, No 5, pp 327-332

By analyzing curves of the dependence of viscosity on velocity gradient or shear stress in viscosity range $E_{50} = 1.22 - 27^{o}$, at temps between 0^{o} and -50^{o}, and velocity gradients $10^{-5} - 5$ sec^{-1}, established that the curves (obtained experimentally) consist of 4 (in rare cases of 3) regions: region of structure formation, region

196T3

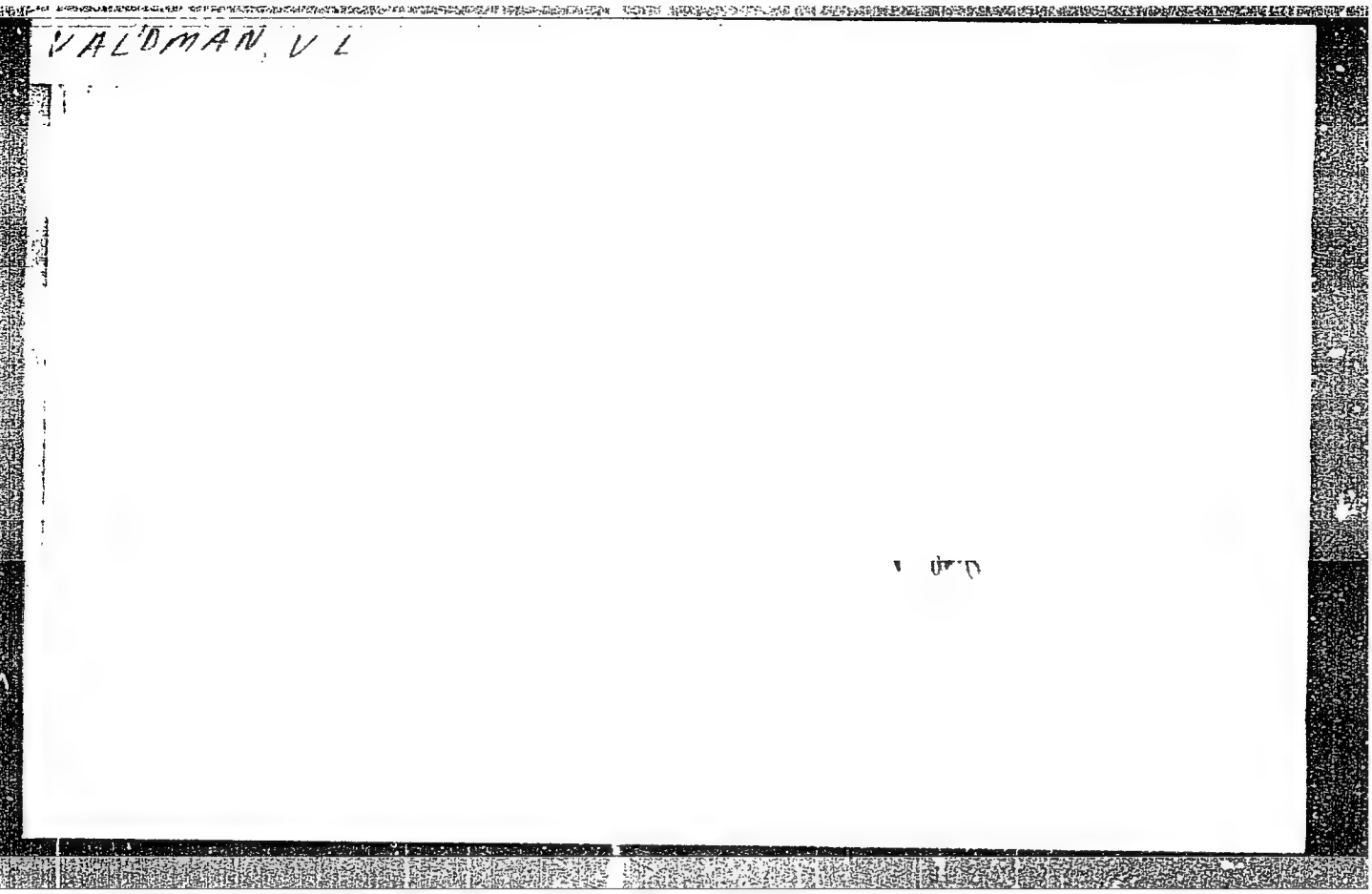
USSR/Chemistry - Lubricants (Contd) Sep/Oct 51

of structural viscosity, region of equil viscosity (const viscosity when velocity gradient is reduced), region of viscosity with destroyed structure. In the range investigated, there is no "Philippoff region" (cf. W. Philippoff, "Kolloid Zhur" Vol LXXI, 1, 1935).

196T3

VAL'DMAN, V. L.

✔ Effect of the chemical composition of lubricating oils on the efficiency of depressor additives. V. L. Val'dman. *Colloid J. U.S.S.R.* 15, 6-9(1953)(Engl translation).—See *CA*. 47, 5873d. H. L. H.



37923
S/262/62/000/006/016/021
I007/I207

AUTHORS: Volarovich, M.P., Valdman, V.L.

TITLE: Investigations on low-temperature properties of lube oils to which high-polymer admixtures have been added

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk. 42. Silovye ustanovki, no.6, 1962, 77, abstract 426372. ("Tr.3-y Vses. konferentsii po treniyu i iznosu v mashinakh." v.3, Moscow, AS USSR, 1960, 256-261).

TEXT: Lube-oils with high polymer additives of the paratonsuperol type have an increased viscosity index. The authors investigated and compared the following oil grades: spindle oil 3 with an addition of 3-6% superol and 10-30% vinipol, avtol 18, avtol 10 [Abstractor's note: a Soviet type of lube oil for automobiles], as well as the SAE-10,SAE-30,SU,MZS,MK,MS,A-18, and other oil grades. Petroleum lube oil , and oils with additives have been subjected to comparative tests on a special test stand permitting the

Card 1/2

VAL'DMAN, V.L., doktor tekhn.nauk

Vibratory crushing of phosphorites by means of rough stones as grinding body and water as a surface-active softening agent of ore hardness. Trudy NITKHT no.1:54-65 '62. (MIRA 17:4)

Jan 1947

VAL'DMAN, V.R.

USSR/Engineering
Machinery - Construction
Castings

"Production of Large Casts from Modified Pig in Heavy Machine Production," M.I. Yakhnenko, V.R. Val'dman, V.A. Vlasova, Engineers, 7½ pp

"Vest Machinostroy" No 1

Briefly describe method developed and adopted by the Novo-Kramatorskiy works, where various modifiers added to molten pig intended for casting parts for heavy machinery. Authors note that it is important to add the modifiers in chunk form, dimensions of which are determined by temperature of metal and weight of intended cast. Engineers Ya. L. Esterson, Ye. S. Shul'gin, and L.S. Yashin aided greatly in experimental part of thework. Research continues.

PA 50T37

VAL'DMAN, V.R.

Development of technological processes of forging and heat treatment at the Novo-Kramatorsk Machinery Plant during the last 25 years. Sbor.Novo-Kram.mashinostroi.zav. no.5:3-14 '59. (MIRA 16:12)

ACC NR: AT7001356 SOURCE CODE: UR/0000/66/000/000/0095/0108

AUTHOR: Valdmanis, Ya. Ya. (Candidate of Physico-mathematical sciences)

ORG: none

TITLE: Longitudinal edge effect in linear induction magnetohydrodynamic machinery

SOURCE: AN LatSSR. Institut fiziki. Dvisheniye provodyashchikh tel v magnitnom pole (Movement of conducting bodies in a magnetic field). Riga, Izd-vo Zinatne, 1966, 95-108

TOPIC TAGS: mhd, liquid metal, Maxwell equation, electromagnetism

ABSTRACT: The author reviews the present status of research on the longitudinal edge effect in mhd machinery, with account of specific properties of such machinery (unlimited secondary circuit and practically infinite magnetic permeability of the core). The channel of the liquid metal is assumed infinite, and the longitudinal effect is associated only with the finite dimensions of the inductor, which is assumed to be a smooth magnetic circuit with specified surface current in the form of a traveling wave. The longitudinal effect is manifest in the presence of supplementary pulsating fields in the gap, which propagate over the entire length of the inductor with practically constant amplitude. The author considers first the field of a finite inductor and analyzes the changes in the field distribution in the presence of the secondary circuit. Directions for further research are then outlined. Only the electrodynamic part of the calculation is considered in that the liquid metal of the

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ACC NR: AT7001356

secondary circuit is regarded as a rigid body moving with constant speed. All the results are obtained by solving Maxwell's equations (in differential or integral form) with suitable boundary conditions. Some errors in published investigations are pointed out. Orig. art. has: 5 figures and 32 formulas.

SUB CODE: 20 09/ SUBM DATE: 22Jul66/ ORIG REF: 018/ OTH REF: 003

Card 2/2

ACC NR: AP7001329 SOURCE CODE: UR/0371/66/000/005/0095/0103

AUTHOR: Valdmanis, Ya. Ya.--Valdmanis, J.; Kalnin', T. K.--Kalnins, T.

ORG: Institute of Physics, AN LatSSR (Institut fiziki AN LatSSR)

TITLE: Electromagnetic pressure head and eddy current losses in induction pumps with moving poles

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 5, 1966, 95-103

TOPIC TAGS: mhd, liquid metal pump, eddy current

ABSTRACT: The authors describe electromagnetic induction pumps with permanent-magnet excitation used for pumping liquid metals. The relations between the magnetic field, the electromagnetic pressure differential, and the eddy current loss in the metal are derived by using a simplified plane pump model with infinite geometry. The influence of higher harmonics of the magnetic field and other parameters on the operation of the pump is analyzed. Unlike three-phase induction pumps, where the higher harmonics reduce the torque, in this particular model the harmonics increase the torque. Methods of improving the efficiency of the pump by increasing the speed of the liquid metal and by decreasing the slip are proposed and discussed. Results of numerical calculations and experimental tests are presented and ways of improving the accuracy of the calculations are pointed out. Orig. art. has: 5 figures and 25 formulas.

SUB CODE: 13, 14/ SUBM DATE: 24Dec65/ ORIG REF: 003

Card 1/1

L 01468-66 EWT(1) IJP(c)

ACCESSION NR: AP5016658 UR/0382/65/000/002/0101/0110
538.4+621.689

AUTHOR: Valdmanis, Ya. Ya.; Kunin, P. Ye.; Mikel'son, Yu. Ya.; Taksar, I. M.

TITLE: Conducting slab in a traveling electromagnetic field of a two-sided inductor

SOURCE: Magnitnaya gidrodinamika, no. 2, 1965, 101-110

TOPIC TAGS: MHD, electromagnetic field, current density, magnetic induction

ABSTRACT: Theoretical study of current density and magnetic induction in a slab with conductivity σ and permeability μ_0 is reported. The slab is placed between linear round conductors; the slab and conductors are between regions characterized by infinite permeability. These are denoted as regions I, II, III in fig. 1 of the Enclosure. The conductors producing the traveling magnetic field are connected to a three-phase generator. The solution for magnetic vector potential and current density are obtained by writing out both as infinite series and appropriate boundary conditions are applied. The resulting magnetic induction (and current density) then

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L 01468-66

ACCESSION NR: AP5016658

lead to the expression for the magnetic force density components along and across the conducting slab. The conditions for minimizing the effects of various harmonics on the magnetic force density are given as well as its dependance on the skin depth in the slab and separation of conductors from the slab. Change in force density is also considered when N conductors are connected to a given phase. The differences between the two cases are pointed out and it is noted that only a small increase in force density can be achieved. Finally, two more cases are considered where the current-carrying round conductors are replaced by flat plates with and without separation between them. The average force density is computed to within 0.1%. Orig. art. has: 46 formulas, 4 figures.

ASSOCIATION: none

SUBMITTED: 010ct64 ENCL: 01 SUB CODE: EM, ME

NO REF SOV: 002 OTHER: 000

Card 2/3

L 01468-66

ACCESSION NR: AP5016658 ENCLOSURE: 01

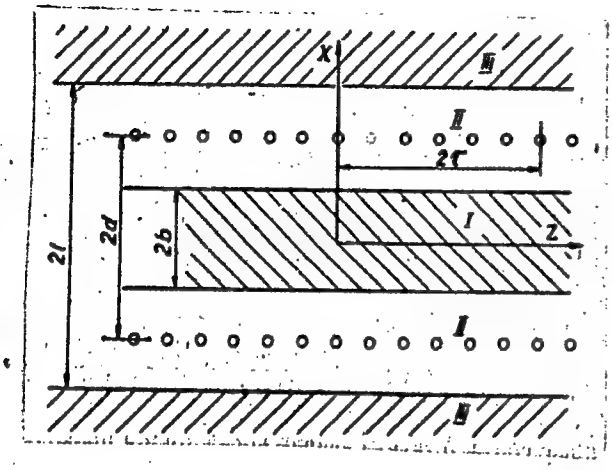

Fig. 1.
I--Infinite conducting slab with conductivity σ and permeability μ_0
II--Region with conductivity σ = 0 and $\mu = \mu_0$
III--Region with μ= ∞ and σ = 0

Card 3/3

L 34983-66 EWT(1)/EWP(m)/T-2 IJP(c)
ACC NR: AT6016815 SOURCE CODE: UR/0371/65/000/006/0027/0033

AUTHOR: Valdmanis, Ya. Ya. (Valdmanis, J.); Liyelpeter, Ya. Ya. (Lielpetrs, J.); Mikel'son, Yu. Ya. (Mikelsons, J.)

ORG: Institute of Physics, AN LatSSR (Institut fiziki AN LatSSR)

TITLE: Effect of higher spatial field harmonics on the electrodynamic forces and Joule losses in a conducting strip moving in a traveling magnetic field

SOURCE: AN LatSSR. Izvestiya. Seriya fizicheskikh i tekhnicheskikh nauk, no. 6, 1965, 27-33

TOPIC TAGS: electrodynamics, magnetohydrodynamics, mhd generator, harmonic analysis, liquid metal, heat loss, magnetic field intensity

ABSTRACT: In view of the fact that in most papers devoted to the theory of magnetohydrodynamic induction machinery with liquid metal account is taken of only the fundamental harmonic of the magnetic field in the working gap, the authors analyze the influence of higher harmonics in an idealized model of a magnetohydrodynamic induction machine under the assumption that transverse and longitudinal edge effects can be neglected, and that the liquid metal moves as a rigid body. The ferromagnetic surfaces are assumed smooth, so that only higher harmonics due to the distribution of the winding conductors are taken into account. Under these assumptions, expressions are obtained for the force density and the Poynting vector of a conducting strip placed in the traveling magnetic field of a two-sided symmetrical inductor.

Card 1/2

L 34983-66
ACC NR: AP6016815

The calculations show that the dependence of the higher spatial harmonics on the various parameters of the system is quite complicated, and a detailed analysis of the effects is necessary. Although for certain configurations the Joule losses and the electrodynamic force may not be strongly affected by the spatial harmonics, in most cases these harmonics can exert a strong influence and result in appreciable changes. The effect of harmonics is stronger when the induction magnetohydrodynamic machine operates like a generator than when it operates in the pump mode. Orig. art. has: 5 figures and 36 formulas.

SUB CODE: 20, 09/ SUBM DATE: 20Mar65/ ORIG REF: 005

Card 2/2 BLG

ACC NR: AP6034584 (N) SOURCE CODE: UR/0382/66/000/003/0101/0105

AUTHOR: Valdmanis, Ya. Ya.; Liyelpeter, Ya. Ya.

ORG: none

TITLE: Theory of longitudinal edge effect in a linear induction magnetohydrodynamic machine

SOURCE: Magnitnaya gidrodinamika, no. 3, 1966, 101-105

TOPIC TAGS: MHD generator, mathematic model, magnetic field intensity, edge effect

ABSTRACT: Results of the theoretical and experimental determination of the structure of the magnetic field in the stator-rotor gap of a linear induction magnetohydrodynamic generator with an arbitrary number of magnetic poles are discussed. These results were obtained in order to compare the behavior of an experimental generator with an idealized mathematical model described in terms of magnetic intensity distribution in various regions of the generator. The solutions that were obtained are characterized by harmonic behavior. A special case of an unloaded generator is considered in greater detail for comparison with test generators of both the plane and cylindrical type. Measurements of the field distribution were made using magnetic loops as probes and some of the typical results are graphed for generators with magnetic conductor regions twice as long as the winding region. Similar results were found for generators with

Card 1/2 UDC: 621.313.39:538.4

ACC NR: AP6034584

conductor and winding regions of comparable length. The difference in field intensity for these two cases agrees qualitatively with the results of the mathematical model. Similar agreement was obtained in a test with a plane generator. Orig. art. has: 5 figures, 15 formulas.

SUB CODE: 20/ SUBM DATE: 28Jan66/ ORIG REF: 013/ OTH REF: 003

Card 2/2

VAL'DNER, A.N.

PHASE I BOOK EXPLOITATION SOV/5334

Moscow. Inzhenerno-fizicheskiy institut

Ekstraktsii; sbornik statey (Accelerators; Collection of Articles) Moscow, Atomizdat, 1960. 163 p. Errata slip inserted. 3,600 copies printed.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR.

Ed. (Title page): G. A. Tyagunov, Doctor of Technical Sciences, Professor; Tech. Ed.: S. M. Popova.

PURPOSE: The book contains articles by staff members of the Department of Electrophysical Installations of the MIFI (Moscow Engineering Physics Institute) reflecting theoretical and experimental investigations of linear electron accelerators, betatrons and synchrotrons; one article deals with ion sources for cyclotrons.

COVERAGE: The book contains articles by staff members of the Department of Electrophysical Installations of the MIFI (Moscow Engineering Physics Institute) reflecting theoretical and experimental investigations of linear electron accelerators, betatrons and synchrotrons; one article deals with ion sources for cyclotrons. The theoretical papers on linear electron accelerators are a continuation of a similar research paper published in the collection of articles "Lineynyye uskoriteli" (MIFI edition, 1959) on the dynamics of particles in these machines. The theoretical papers on particle trapping for acceleration conditions in betatrons and synchrotrons contain a mathematical solution of this problem which takes into account the collective properties of that of particles in the beam and the inductive properties of the betatron at the moments of onset and break. A number of experimental investigations deals with measurements at shf and with electron accelerator and betatron components, while a special study is concerned with the linear cyclic accelerator ("slutron") proposed a few years ago by one of the coauthors of the article in question. No personalities are mentioned. References accompany most of the articles.

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AVAILABLE: Library of Congress

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S/169/62/000/004/004/103
D228/D302

AUTHORS: Savarenskiy, Ye. F. and Val'dner, N. G.

TITLE: Lg and Rg waves from earthquakes in the Black Sea Basin and some deliberations about their nature

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 4, 1962, 14, abstract 4A106 (V sb. Seysmich. issled., no. 4, M., AN SSSR, 1960, 55-77)

TEXT: Lg and Rg waves were studied, and it is considered whether the Lg_2 wave can possibly be interpreted as a surface wave. Examples are quoted for observations of these waves at the "Moscow" and the "Simferopol" stations. Lg and Rg waves are characterized by rather clear arrivals and are connected both with the change in the period and the increase in the amplitude. In most cases the Lg wave embodies oscillations that are perpendicular to the epicentral direction. The mean Lg_1-wave velocities equal 3.5 + 0.06 km/sec for North America. For Eurasia the Lg_1-wave equals 3.5 ± 0.07 km/sec,

Card 1/2

the Lg_2 wave being 3.37 ± 0.04 km/sec. For California Lg_1 = 3.5 ± 0.07 km/sec. The Rg wave is polarized in the vertical plane and has a vertical and a horizontal (radial) component. It is a Rayleigh-type wave. It is characterized by rapidly increasing amplitudes. The average Rg-velocity values equal 3.05 ± 0.04 km/sec for North America; for Eurasia Rg = 3.07 ± 0.04 km/sec. The records of 73 earthquakes were investigated. It was discovered that the clearest and most intensive arrivals of Lg and Rg waves are observed for most Greek and South European earthquakes. Less sure arrivals were observed for Turkish earthquakes, when the wave path crossed the middle of the Black Sea. In the authors' opinion Lg is a Love wave. In particular, Lg_2 may correspond to the change from the simple to the composite section of the group-velocity dispersion curve (the complex section is characterized by the appearance of short-period oscillations). [Abstracter's note: Complete translation.]

23456
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D226/D306

3.9300 (1019, 1109, 1327)

AUTHORS: Val'dner, N.G., Savarenskiy, Ye.F.

TITLE: On the nature of the Lg_1 - phase and its propagation in North East Asia

PERIODICAL: Akademiya nauk SSSR. Seriya geofizicheskaya. Izvestiya, no. 1, 1961, 3 - 24

TEXT: Fifty-four earthquakes occurring during 1957-8 in the region Pamir - Mongolia - Kurile arc - Aleutians, in the magnitude range 4½ - 7, are analyzed in detail for the phases Rg and Lg arriving at a single station, Tiksi (72°N, 128°E). The arrivals fall into two groups, one with and one without an appreciable fraction of oceanic path. The wholly continental paths give strong clear arrivals of both Lg and Rg with fairly short periods: 2 - 10 sec. The velocities deduced are Lg_1 - 3.53 Km/s: Lg_2 - 3.31 Km/s: Rg - 3.05 Km/s. A sub-group from epicenters in the Aleutians gave rather

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weak long-period (18/24 sec) surface arrivals, probably due to having passed through the deepest ($H > 3.5$ Km) part of the Bering Straits, where the graphitic layer must be interrupted. The main group with interrupted paths, e.g. those from the Kurile arc traversing the sea of Okhotsk, gave Lg_1 - 3.50 km/s; Lg_2 - 3.29 km/s and Rg - 3.06 km/s. The conclusion from this part of the paper is that the granitic layer is complete between Mongolia and Tiksi but is interrupted between the Aleutian-Kurile-Japan sector and Tiksi. There are one map, 5 examples of seismograms and a table of 54 earthquakes giving for each the time of origin, the epicentral coordinates correct to about 0.5°, the epicentral distance used, the phases observed, direction of first motion, travel time and deduced velocity of each observed phase and its principal period. The authors then discuss extensively the theory of the properties of Love waves, proceeding from the case of a single layer on a rigid substrate and extending to the case of 2 elastic layers on an elastic sub-strate. This theory is based on the multiple-reflection of plane SH-waves. Then some results are calculated for group-velocity

based on the following choice of values:

$$\frac{b_2}{b_1} = 1.127, \quad \frac{b_3}{b_1} = 1.324; \quad \frac{P_2}{P_1} = 1.095, \quad \frac{P_3}{P_1} = 1.204$$

where b - velocity of SH in media 1, 2, 3; and P - density of media 1, 2, 3. The results are illustrated in Fig. 1o for various values of h_1/H, where h - thickness of upper layer, $H = h_1 + h_2$, h_2 - thickness of lower layer. The effect of the sharpness of the maxima in these curves upon the amplitude and appearance of the arrivals is now analyzed. The theory given is formal and leads to the well known result

$$A(T_0) \sim \frac{1}{T_0 \sqrt{\left|\frac{dC}{dT}\right|_{T=T_0} \cdot x}}. \qquad (28)$$

(28)

where A - amplitude of onset centered on period T_0, x - epicentral distance. The application of this result is graphically illustrated and it is seen that sharp onsets result from the further con-

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On the nature of the ...

dition that $\alpha^2 C/\alpha T^2$ must be large at $T = T_m$. Finally, the authors use a method of J. Dorman (Ref. 7: Numerical solution for Love wave dispersion on a half-space with double surface layer. Geophys. 24, No1, 1959) to estimate from their results and those of other authors including M. Bäth (Ref. 9: The elastic waves Lg and Rg along Eurasiatic paths. Ark. geofys. B.2, No. 13, 1954), F. Press, T. Ewing (Ref. 10: Two slow surface waves across North America. Bull. Seism. Soc. Amer., 43, No. 3, 1952) the probable thickness of the crust in this region and also the ratio h_1/H. These results are illustrated in Figs. 12 and 13. The comment on Fig. 12 is that the scatter horizontally may be accounted for by errors in reading T from seismograms. The comment on Fig. 13 is that Lg may either be a first or second mode of Love wave. The hypothesis that it is a Love wave at all is claimed to be "satisfactory". There are 1 table, 13 figures and 16 references: 9 Soviet-bloc and 7 non-Soviet-bloc. The references to the four most recent English-language publications read as follows: I. Tolstoy, Dispersive properties of a fluid

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layer overlying a semi-infinite elastic solid. Bull. Seism. Soc. Amer. 44, No. 3, 1954; J. Dorman, Numerical solution for Love wave disperion on a half space with double surface layer. Geophys. 24, No. 1, 1959; M. Bath, The elastic waves Lg and Rg along Eurasiatic paths. Ark. gefys. B2, No. 13, 1954; S. Oliver, M. Ewing, M. Press, Crustal structure of the arctic regions from the Lg phase. Bull. Geol. Soc. Amer., 66, No. 9, 1955.

ASSOCIATION: Akademiya nauk SSSR, institute fiziki zemli tsentral' naya seysmicheskaya stantsiya, Moskva (Academy of Sciences USSR, Institute of Physics of the Earth, Central Seismic Station, Moscow)

SUBMITTED: May 3, 1960

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S/049/61/000/006/008/014
D239/D306

AUTHOR Val'dner, N.G.

TITLE Travel-times for L_1, L_{g_1}, L_{g_2}, R_g

PERIODICAL Akademiya nauk. Izvestiya. Seriya Geofizicheskaya, 1961, no. 6, 882-888

TEXT These phases can be quite useful as they often show sharp onsets, continue for several cycles and have relatively short periods. (2-10 sec). About 200 recorded earthquakes in the Black Sea area and northeast Asia, studied by Ye. F. Savarenskiy, and N.G. Val'dner (Ref. 2: Observations of L_g and R_g waves from the Black Sea basin earthquakes, Ann. Geofiz. 13, no. 2, 1960) were examined and on 140 of these good onsets were discovered. The data are presented in the form of a graph of the time intervals L_1-P etc. against Δ°. The article is illustrated with six-well-reproduced photographs of typical seismograms. Using

Travel-times ...

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the smoothed data of Fig. 7 two examples are given of epicenter determinations which agree to within plus-minus half a degree of the epicenter determined by the use of conventional phases. There are 7 figures and 3 Soviet-bloc references.

ASSOCIATION: Akademiya nauk SSSR. Institut fiziki zemli; Tsentral naya seismicheskaya stantsiya "Moskva" (Academy of Sciences USSR, Institute of Physics of the Earth; Central Seismic Station "Moskva")

SUBMITTED: December 9, 1960

For Fig. 7 see next card

VAL'DNER, N.G. (Moskva)

Strong earthquakes. Priroda 51 no.11:110-111 N '62. (MIRA 15:1)

(Earthquakes)

VAL'DNER, V.K., kand.

Stationary grain dryers. Trakt. i sel'khozmash. no.7:39-41 Jl '58.
(MIRA 12:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut sel'skokhozyaystvennogo mashinostroyeniya.
(Grain--Drying)

VAL'DNER, N.K.

The SZSB-8,0 and SZSB-4,0 universal drum dryers. Biul.tekh.-ekon.-inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. no.8:69-70 '62. (MIRA 15:7)

(Drying apparatus)

AUTHORS: Val'dner, O.A., Milovanov, O.S., Tyagunov, G.A., 89-7-7/32
Shal'nov, A.V.

TITLE: A Linear Electron Accelerator for 4.5 MeV (Lineynyy elektronnyy uskoritel' na 4.5 Mev)

PERIODICAL: Atomnaya Energiya, 1957, Vol. 3, Nr 7, pp. 41-44 (USSR)

ABSTRACT: The accelerator discussed here has two divided sections for the purpose of being used as elements of a cyclical accelerator. The first section serves as an injector and the second as an accelerating element. The main nodes of the linear accelerator are shown in a schematical drawing. Furthermore, compensation of the defocusing forces is discussed in short. The technical computation of the wave conductor with diaphragm deals with two main problems: with the determination of the geometrical dimensions and with the dynamic of the motion of the electrons in the accelerated system. The initial data for the computation are given. The dynamic of the particles in the accelerated system is computed here by means of Slater's method. The geometrical dimensions were precisely determined with the help of experimentally determined dispersion curves. Experimental Results: Some preliminary operations took place before starting the linear accelerator: The section was tuned to a

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A Linear Electron Accelerator for 4.5 MeV 89-7-7/32

low level of efficiency by means of a measuring generator. After tuning-in of the highfrequency section, injection and focusing of the electron beam was investigated. The coil was adjusted by two methods: provisionally by means of the ray of a centrifuge in the case of a lacking accelerated field, and finally with the help of a ray of accelerated electrons. Next, the parameters of this accelerator were investigated. The energy of the accelerated electrons and their spectrum was determined by means of a spectroscopic analyzer. The spectra recorded by this analyzer are shown in a diagram. The ratio E/E amounts to 6% and 8% for the first and second sectors respectively. The investigation of the dependence of the energy of the accelerated electrons in the first section upon the length of the wave produced by the magnetron is also of great interest. Also this dependence is shown in form of a diagram. The accelerator described here was constructed for laboratory use. The results obtained will permit the construction of a more perfect accelerator model. There are 5 figures and 7 references, 0 of which are Slavic.

SUBMITTED: November 9, 1956

AVAILABLE: Library of Congress

Card 2/2 1. Electron accelerators-Design 2. Electron accelerators-Test results 3. Electron accelerators-Equipment

VAL'DNER, O.A.

89-3-9/30

AUTHORS: Val'dner, O. A., Milovanov, O. S., Tyagunov, G. A., Shal'nov, A. V.

TITLE: A 6 MeV Linear Accelerator for Electrons (Lineynyy elektronnyy uskoritel' na 6 MeV)

PERIODICAL: Atomnaya Energiya, 1958, Vol. 4, Nr 3, pp. 285 - 285 (USSR)

ABSTRACT: The accelerators earlier described (reference 1) were improved so that they can now supply 6 MeV electrons without having made it necessary to increase the high-frequency input power. The improvement was obtained by a redesign of the second section of the accelerator where the velocity of wave propagation is equal to the velocity of light. In this section the radius a of the shutter was decreased so much that $a/\lambda = 0{,}13$ (earlier it was 0,17). This made possible an increase of the electric field strength along the axis of up to 30 kV/cm. A widening of the spectrum of energy of the accelerated particles was observed as a consequence of the increase of energy (10 % compared with earlier 8 %). There is 1 reference,

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89-3-9/30

A 6 MeV Linear Accelerator for Electrons

1 of which is Slavic.

SUBMITTED: November 18, 1957

AVAILABLE: Library of Congress

1. Electron accelerators-Redesign

Card 2/2

21(9) SOV/112-59-2-3683

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 2, p 207 (USSR)

AUTHOR: Val'dner, O. A., Milovanov, O. S., Tyagunov, G. A., and Shal'nov, A. V.

TITLE: Linear Electron Accelerator 6 Mev
(Lineynyy elektronnyy uskoritel' na 6 mev)

PERIODICAL: Izv. vyssh. uchebn. zavedeniy. Radiotekhnika, 1958, Nr 2, pp 222-230

ABSTRACT: The Chair of Electrophysical Outfits, Moscow Engineering-Physics Institute, designed a linear traveling-wave electron accelerator that comprises two sections: the bunching section (accelerating the electrons from 0.4 to 0.97 of the velocity of light), and the accelerating section (bringing the velocity closely to that of light). The sections are connected by a sylphon passing the electrons and by a waveguide matching unit. Ultrahigh-frequency oscillations are derived from a magnetron which is fed by 2.5-microsec pulses with a

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Linear Electron Accelerator 6 Mev

repetion frequency of 400 cps. Phase shifters are provided at the inputs of both sections. The first section consists of a copper tube (also serving as a vacuumtight envelope) of 90-mm internal diameter; copper diaphragms are secured by the heat-fit method (by liquid-nitrogen cooling). The fosuing coil is slipped over the copper tube. The second section consists of rings held together by longitudinal pins; it has a separate vacuumtight enclosure. The accelerator operates with continuous pumping (seven TsLV-100 pumps, liquid-nitrogen traps). Its current is up to 30 ma; the energy at the first section output is 3.5Mev, and at the second section output, 6.5 Mev. Methods of design, experimental characteristics, and possible applications are indicated. Bibliography: 9 items.

P.K.S.

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SOV/120-58-4-2/30

AUTHORS: Val'dner, O. A., Sobenin, N. P.

TITLE: Measurement of the Variable Phase Velocity in a Waveguide by the Phase-Meter Method (Izmereniye peremennoy fazovoy skorosti v volnovode metodom fazometra)

PERIODICAL: Pribory i tekhnika eksperimenta, 1958, Nr 4, pp 19-21 (USSR)

ABSTRACT: A phase meter, the block diagram of which is shown in Fig. 1, was used in determining phase velocity. The method consists of finding the phase differences $\Delta\varphi$ between the cells of a waveguide constructed of a large number of irises. For this purpose the coupling loop of the system is inserted successively into two neighbouring cells of the waveguide, the probe of the standard measuring line is suitably adjusted, and in each case a minimum reading of the indicator is found. The phase difference $\Delta\varphi$ between the cells is equal to the electrical length of the shift of the probe. The average phase velocity over a segment D can be found from:

$$v_{cp} = 2\pi D/\lambda\Delta\varphi \qquad (1)$$

where λ is the wavelength in free space. The method of measurement is subject to some errors. In particular, an

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Measurement of the Variable Phase Velocity in a Waveguide by the Phase-Meter Method

error is caused by the presence of the reflected wave in the standard line and it is shown that the maximum error caused by this effect can be expressed by Eq.(3) where r is the modulus of the reflection coefficient. The second error is due to the wave reflected from the output terminal of the iris-cell waveguide. The relative error in determining the phase velocity v , due to this effect, can be determined from Eq.(4) where D is the length of one cell and ΔD is the linear tolerance for a cell. The method was used experimentally to determine the velocity in a system where the cell length D varied from 12.1 to 26.54 mm, aperture of the iris ranged from 29.7 to 30.27 mm, diameter of the waveguide was between 91.84 and 87.85 mm and the thickness of the iris was 4 mm. The results are plotted in Fig 3,

Measurement of the Variable Phase Velocity in a Waveguide by the Phase-Meter Method

where the circles indicate the experimental points while the smooth curve was calculated. The paper contains 3 figures and 6 references; 3 of the references are English and 3 are Soviet.

ASSOCIATION: Moskovskiy inzhenerno-fizicheskiy institut (Moscow Engineering-Physics Institute)

SUBMITTED: September 28, 1957.

VALDNER, O.A.

21(9) PHASE I BOOK EXPLOITATION SOV/2003

Moscow. Inzhenerno-fizicheskiy institut

Lineynyye uskoriteli; sbornik statey (Linear Accelerators; Collection of Articles) Moscow, 1959. 94 p. 1,000 copies printed.

Ed.: G. A. Tyagunov, Doctor of Technical Sciences, Professor; Tech. Ed.: R. A. Negrimovskaya.

PURPOSE: This collection of articles may be useful to engineers engaged in the development, production and application of linear accelerators.

COVERAGE: The authors discuss the theory and operation of linear accelerators developed by MIFI. They describe methods of measuring variable phase velocity in a waveguide of a linear electron accelerator and discuss ways of determining the diameter of a waveguide. A method of improving the energy spectrum at the output of an accelerator is also discussed. No personalities are mentioned. References appear at the end of each article.

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Linear Accelerators; (Cont.) SOV/2003

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Linear Accelerators; (Cont.)

There are 6 references: 3 Soviet and 3 English.

Glazkov, A. A. The Amplitude of the Fundamental Wave (TM) in a Diaphragm-type Waveguide 32

The author generalizes the procedure for calculating the amplitude of the accelerating wave in a linear electron accelerator, depending on geometrical parameters and operating conditions of a waveguide. It is shown that the value of the fundamental wave decreases when higher-order modes are taken into account in calculations. The author also derives an expression for partial power of the accelerating harmonic. It is shown that partial power depends on the distribution of amplitudes of harmonics at the axis of the waveguide. The author also discusses methods of obtaining the function of amplitude distribution. He presents numerical results of the calculation of partial power, which may be used in practical application. He also describes possible methods of experimental study of higher harmonics in a waveguide. There are 15 references: 6 Soviet and 9 English.

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The author describes the reflecting plunger method of measuring variable phase velocity in a diaphragm-type waveguide. He discusses possible error sources and evaluates the accuracy of determining phase velocity. He also presents results of experimental studies of reflecting plungers and suggests optimum sizes of plungers. There are 4 references, all English.

The author presents experimental and theoretical data for calculating the diameter of a diaphragm-type waveguide with variable phase velocity. He also presents parametric curves for determining the diameter of a waveguide in a wide range of variation of the phase velocity, operating wavelength, and size of the diaphragm aperture. The curves are valid for diaphragm-type waveguides excited by $\pi/2$-type waves and having a diaphragm thickness of 4 mm. There are 9 references: 1 Soviet and 8 English.

The authors study the axial motion of particles in a waveguide resonator of a linear electron accelerator with a klystron preresonator. Methods of analyzing electron bunching are also presented. The authors suggest plotting the output characteristics of a waveguide resonator as a function of output parameters (terminal energy and phase) and the phase of the high-frequency field of a particle entering the klystron resonator. They also present two numerical examples illustrating the advantageous effect of preliminary bunching by means of a klystron. The authors also discuss the injection characteristics of two types of resonators and present the phase-energy characteristics of a klystron resonator. There are 8 references: 5 Soviet, 2 English, and 1 French.

The authors present a theoretical study of a method of shifting the phase 180° as a means of reducing energy scattering at the output of a